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STUDIES IN BUSINESS FINANCING

THE FINANCING OF LARGE CORPORATIONS

1920-39

by

ALBERT RALPH KOCH

NATIONAL BUREAU OF ECONOMIC RESEARCH
NEW YORK 1943

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PREFACE

THIS STUDY IS ONE OF a series prepared under the Financial Research Program's Business Financing Project, the second major investigation undertaken by the Program with the support of grants from the Association of Reserve City Bankers and the Rockefeller Foundation. Work on the project began early in 1940, with three major objectives: first, to trace from business accounting records the structural and cyclical changes that have occurred in the financial organization of business enterprise since the turn of the present century; second, to determine the cross-sectional pattern for recent years of business credit demands; and third, to describe the adaptations that financing institutions providing short- and medium-term credit have made over the past decade in response to changing demands for their services.

Project research activities have been carried on under two main divisions, one entitled "Changes in Financing American Business Enterprise, 1900–1940," concerned primarily with the first objective; the other division "Contemporary Relations Between Business Enterprise and Financial Institutions," devoted specifically to the second and third objectives. Under each division, a number of technical studies have been developed from special primary materials, the findings of which are to be the basis of broader interpretive studies in preparation.

When work on the Business Financing Project was initiated, no comprehensive tabulations of corporate financial data covering the entire period of our study were available with which to measure changes in the financing practices of business enterprise. Furthermore, existing tabulations were of varying coverage as to time period, industry and size of enterprise represented. The first problem of the project's staff was to test the accounting and statistical consistency of available compilations, and, the second, to build up supplementary tabulations of corporate financial data from whatever sources could be drawn upon. A number of public and private agencies cooperated generously in the solution of these problems, particularly the second, and with their assistance several new samples of business financial data were developed from investment manuals, state tax report files, Federal corporate income tax returns, the industrial loan files of the Federal Reserve Banks of New York and Philadelphia, Dun and Bradstreet credit reports, bank credit files, and other sources. The complete set of business financial data utilized in the Business Financing Project will eventually be made available under the title "Data for Studies in Business Finance, 1900–1940."

Dr. Koch's study is one of the technical series under the first division of the project. Others in the series are: *Financing Small Corporations in Five Manufacturing Industries, 1926–36,* by Charles L. Merwin, published in December 1942, and *The Financial Structure of Manufacturing and Trade Corporations: A Cross-Section View, 1937,* by Walter A. Chudson.

The primary data from which this study was developed were obtained from several sources. The data on large manufacturing corporations were compiled by the project staff from investment manuals, annual reports of corporations and direct correspondence with the individual corporations covered; those relating to 1930–39 were assembled with the cooperation of the Division of Research and Statistics of the Board of Governors of the Federal Reserve System, which has been engaged in a study of the financing of large manufacturing corporations for several years. The data for the large trade corporations other than department stores were obtained directly from similar sources, and those for department stores were tabulated in cooperation with the Harvard Bureau of Business Research from financial statements collected each year in connection with its annual study of department store operating ratios. The data on other groups of companies—the Bell Telephone System, steam railroads and electric light and power companies—were secured principally from published sources. The Federal Communications Commission supplied special information on telephone financing. The National Bureau gratefully acknowledges the help of all the agencies that cooperated in the assembly of data for this study.

The special purpose of this technical study has been to ascertain for the decades of the twenties and thirties the character of the changes in the financing processes of large integrated corporations. In carrying out this purpose, the author has been primarily concerned with fluctuations in the sources and uses of funds of these companies, as shown by annual changes in their financial statement data. Except for Class A railroads and the Bell Telephone System, his data relate to samples. These samples, however, incorporate a large and important segment of American business. The analysis is meticulously factual, and the conclusions have been objectively and impartially drawn. It is only by such painstaking work that a body of carefully observed fact may be developed as a basis for broader economic generalization. In connection with a study of the Effect of War on the Financial Structure of American Business, in preparation under a grant of funds from the Carnegie Corporation, the Financial Research Program is now engaged in carrying Dr. Koch's data back to 1914 and forward through this war period.

In compiling the data for this study, extensive use was made of the Marvyn Scudder Financial Library of Columbia University. The National Bureau wishes to take this opportunity to express its appreciation of the cordial cooperation received from the Library.

For general criticism as to method of treatment and many suggestions as to the interpretation of business accounting data, we are indebted to an advisory committee to the National Bureau appointed by the American Institute of Accountants, whose membership included Charles H. Towns, chairman, Charles J. J. Cox and Maurice E. Peloubet. The members of this Committee gave generously of their time in reviewing and criticizing the first draft of this study and the present revision has benefited greatly from their help.

At the time this study goes to press, Dr. Koch is serving as an officer in the Office of Statistical Control of the Army Air Forces. In his absence, the editorial staff has assumed the responsibility for putting his monograph through publication.

RALPH A. YOUNG
Director, Financial Research Program

AUTHOR'S ACKNOWLEDGMENTS

MY THANKS ARE DUE in particular to Ralph A. Young, Director of the Financial Research Program, and Winfield W. Riefler, Chairman of the Committee on Research in Finance at the time of preparation of this study, for their unfailing interest and generous counsel. I am also very much indebted to the other members of the financial research staff of the National Bureau for discussions and suggestions, and to the statistical and typing staffs for their capable assistance. Catherine Connolly bore the brunt of the laborious statistical work and offered helpful comments, while Lucy Rozanski ably supervised the typing of the manuscript.

Lorine Pruette was a source of continuous encouragement and a capable editor who contributed greatly to the readability of the text. Renée S. Courtney assisted in editing and in preparing the manuscript for the press.

To many others who have contributed either data or helpful suggestions, I am most grateful. I am particularly indebted to Arthur B. Hersey of the Board of Governors of the Federal Reserve System who contributed both data on the manufacturing sample and criticism of preliminary memoranda; to Elizabeth A. Burnham and Pearson Hunt of Harvard University, the former supervising and the latter collaborating on the analysis of the department store study; to Rose Boots and Walter Hausdorfer for courteous assistance in utilizing the comprehensive corporate financial statistics of the Columbia University library; and to James W. Angell and Ruth P. Mack of Columbia University, and Solomon Fabricant of the National Bureau for consultation and advice. Raymond C. Kolb of the financial research staff assumed responsibility for checking the final tables for publication and made many contributions to the clarity of the factual presentation.

ALBERT R. KOCH

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STUDIES IN BUSINESS FINANCING

THE FINANCING OF LARGE CORPORATIONS, 1920-1939

NBER FINANCIAL RESEARCH PROGRAM

SUMMARY OF FINDINGS

THE GROWTH OF THE LARGE CORPORATION has had important consequences for all aspects of the American economy. In production it has meant the loss of the personal relationship between owner and worker; in marketing, the separation of producer and consumer; and in finance, changing requirements for business capital and credit.

The purpose of this study has been to outline the financial structure and behavior of large corporations and to discover how their financial requirements have changed. The period 1920–39 was chosen for study in part because these two decades include many of the different business and financial conditions characteristic of our history and in part because of the abundance of corporate financial records available for these years.

Although the corporations included in this study are few in number they are responsible for a great part of all business sales and they own a great part of all business assets. They include the largest concerns in the industries studied; most of them have total assets of $10 million and over.

DEMAND FOR FUNDS

Business demand for funds arises primarily out of the need for fixed and working capital. Fixed capital includes property—land, plant, buildings, machinery, equipment and fixtures—and investments in subsidiaries and affiliates. Analysis of the fixed property expenditures of our samples of large corporations in five broad industrial categories of American business—manufacturing, trade, railroad, telephone, and electric light and power—reveals diverse trends in demand for funds. Expenditures of large trade, railroad, telephone, and electric light and power companies failed to reach the levels of the twenties during the late thirties. In the case of large manufacturing companies, however, particularly in such major industries as automobiles and trucks, chemicals, iron and steel, machinery, and petroleum, fixed property expenditures in the late thirties exceeded even those of the late twenties.

The importance of property expenditures can also be indicated by analyzing their relationship to depreciation, depletion, and amortization accruals, and to sales. For the years 1921–39 as a whole, all five of the broad industrial categories noted above, as well as all major trade groups and all major manufacturing industries except textiles, expended more on property than they set aside from income for depreciation, depletion, and amortization accruals. However, the fixed property expenditures of six major manufacturing industries failed to equal capital consumption, as measured by the sum of depreciation and depletion accruals plus net property writedowns.

Relative to depreciation, depletion, and amortization accruals as well as to sales, the fixed property expenditures of our samples of large corporations in all of the broad industrial classifications except manufacturing declined during the two decades. This decline was greatest in the telephone and electric light and power industries. The decline also occurred in certain major manufacturing industries—for example, in building materials and equipment and chemicals—but was not true of such important manufacturing industries as iron and steel, and petroleum.

Demand for funds for investments in subsidiaries and affiliates is particularly characteristic of large corporations. Among all the industries studied there was a feverish acquisition movement during the late twenties. Since many of these acquisitions were promoted mainly for financial gain rather than for technological reasons, the depressed state of the securities market has been an important factor in dampening this movement in later years.

A second important demand for funds arises out of the need of business enterprises for working capital or current assets. Current asset requirements change seasonally, cyclically, and over the long-run. Moreover, their volume varies greatly with type of industry. Manufacturing and trade concerns require a greater portion of their total assets in a current working form than is true of public utility companies. Indeed, in the case of most trade companies, current assets exceed fixed assets. Among major manufacturing and trade groups, too, the variation in working capital requirements is great.

The principal distinction between fixed and current assets is the difference in the time period for which each of the two types of assets is held by individual business enterprises. Because of the shorter life span of current assets within individual enterprises, a much greater proportion of it can be liquidated during years of business contraction. Therefore, although substantial volumes of funds are expended on current assets during expansions, the liquidation of these current assets during contractions provides funds for other corporate purposes.

Inventory is the most important element of the current assets of most business concerns. Inventory variations, then, are similar to variations in total current assets, increasing in expansions and decreasing in contractions of business activity. Changes in the dollar volume of inventory are closely related to price changes, most minor changes in it being due primarily to fluctuations in prices rather than to changes in the physical stock of goods.

Over the two decades, the inventory holdings of our samples of manufacturing and trade corporations have not changed significantly in relation to sales. This finding is contrary to the opinion, widely held, that the decline in business demand for external financing, particularly for bank loans, is to be attributed to a decline in inventory holdings. Several developments since 1920 might lead us to expect a falling off in the need for inventory financing, among them improved transportation, communication and industrial organization. On the other hand, the increased importance of durable goods in the economy (requiring longer periods of production and a larger volume of goods tied up in manufacturing) might lead us to expect larger inventory/sales ratios. Actually, we find a stable relationship between inventory and sales for the most part. Only the department store group manifests a clear tendency to increase inventory turnover.

Business enterprises also require current funds to extend credit to customers. These credit extensions are indicated on business financial statements by accounts receivable whose dollar volume, like that of total current assets and inventory, varies positively with changes in general business. During the years 1921–39 the receivables of manufacturing corporations decreased, while those of trade corporations increased, relative to sales and total assets. The growth of consumer instalment selling resulted in a large-scale transfer of manufacturing receivables to the finance companies. Competition by finance companies and other lending agencies, on the contrary, affected credit rates and resulted in a loosening of credit terms in the trade concerns, and thus to an increased holding of receivables.

Almost invariably the accounts receivable of large manufacturing and trade corporations exceed their accounts payable. In other words, these concerns are net trade creditors of the rest of the corporate universe, unincorporated business, and individual consumers. Relative to sales and total assets, the net volume of credit extended by large manufacturing concerns to these other segments of the community has not changed perceptibly, while credit extended by large trade concerns has increased somewhat.

The final element of the current assets of business concerns is cash and cash equivalent, that is, marketable securities. The majority of the large corporations studied kept more cash and marketable securities on hand relative to sales and total assets in the thirties than in the twenties. This has been done at least in part for precautionary reasons. The result has been to tie up an increased volume of funds in liquid form within business enterprises.

SOURCES OF FUNDS

The primary sources of funds for business enterprises are short-term borrowings, funds retained from operations, and security sales. The volume of short-term borrowing relative to that of the other two primary sources of funds varies greatly with type of industry, being larger in trade than in manufacturing, and larger in manufacturing than in public utilities. Among the major manufacturing and trade groups studied, variation was also great. In manufacturing, for example, short-term liabilities are important in the automobile and textile industries but insignificant in the iron and steel, and chemicals industries.

For the manufacturing sample, short-term borrowings decreased, that is, absorbed rather than provided funds, over the two decades. This decrease occurred in spite of sizable fixed capital expenditures and additions to working capital. It was, however, not consistent throughout the period but was concentrated primarily in the contraction of the early twenties and to some extent in the contraction of the early thirties. Indeed, during the recovery of the middle thirties, 1933–37, short-term debt was an important source of funds for many large manufacturing corporations. Although an increase occurred in the short-term borrowings of the trade sample, this increase was small compared to their fixed capital expenditures and additions to current assets.

In general, bank loans of manufacturing and trade were unimportant as a source of funds. Moreover, their dollar volume relative to sales and total assets was at the end of the period considerably below that at the beginning. Practically all of this decrease occurred during the early twenties; since the middle twenties the relative volume of these loans has fluctuated with business activity around a fairly stable level. Finally, the bank loans of large corporations are small relative to their bank deposits. To phrase it differently, our sample of large manufacturing and trade concerns as a group was the net creditor rather than the net debtor of the banking community over the two decades studied.

Trade payables due to other business concerns are also unimportant as a source of funds for most large manufacturing corporations. Although these payables tend to vary positively with general business, over the entire period they showed a decrease relative to sales and total assets. Trade payables are a more important source of funds for trade than for manufacturing; in trade, also, these payables have become less important relative to sales and to total assets since 1920.

A primary source of funds for business enterprises is the retained portion of the cash sales dollars. The major part of these funds retained from operations is expressed in financial statements by the volume of undistributed earnings, and depreciation, depletion, and amortization accruals. During the past two decades large manufacturing and public utility corporations as a group have been responsible for a major part of the funds retained from operations by all corporations. In spite of variations in individual industries, small and medium-sized corporations in general accounted for only a small part of funds retained from operations by all corporations.

The total volume of funds retained from operations by large concerns in all of the broad industrial categories has been much less relative to sales and total assets during the thirties than it was during the twenties. Most of this decrease has been due, of course, to the decrease in earnings during the thirties, particularly in the case of railroads. Moreover, in years of comparable business activity the total volume of funds retained from operations by our samples of large manufacturing and trade corporations relative to their fixed capital expenditures has not changed perceptibly since 1920.

The volume of one of the two major components of total funds retained from operations, undistributed earnings, is dependent upon profitability and dividend policy. Of the broad industrial categories studied, large trade concerns are the most profitable and pay out the smallest proportion of net income as cash dividends. Railroads, on the other hand, are least profitable and along with telephone companies pay out the largest part of their net income as dividends. Thus as a result of both of these factors undistributed earnings have been a more important source of funds of trade than of railroad corporations. Manufacturing, telephone, and light and power concerns rely less than trade, and more than railroad, concerns on this source of funds.

The dollar volume of the other major component of total funds retained from operations, represented by earned depreciation, depletion, and amortization accruals, is much larger in manufacturing than in the other broad industrial categories. Moreover, among major manufacturing groups it varies greatly, being far more important in industries with huge fixed capital investments (such as iron and steel, and petroleum) than in industries with large inventory (such as meat packing and tobacco). Relative to sales—or operating revenues—however, depreciation, depletion, and amortization accruals are most important in telephone, and electric light and power companies. Generally speaking, in most industries these accruals have increased relative to sales over the twenties and thirties, although in trade they remained small.

The final important source of funds of large American business corporations is the securities market. Because of the peculiar characteristics of this market and the expense of securities flotation it is practically open only to large, well-established enterprises. Large manufacturing and public utility companies are responsible for most corporate security sales. Since security sales fluctuate with general business activity and since the latter half of the two-decade span studied contained more years of business contraction than the first half, security sales decreased over this period. During years of equivalent business activity, however, security sales during the thirties were as large, if not larger, than those of the twenties. Manufacturing issues in 1937, for example, were larger than the issues of any other year in the two decades, with the exception of 1929, and security issues in 1938 were topped in the twenties only by 1929 and 1927. Relative to undistributed earnings, new funds from the securities market were a more important source of funds in the thirties than they were in the twenties, primarily because of the depressed state of earnings during the thirties.

In 1921–39, although the manufacturing companies in our sample as a group sold almost $6.5 billion of their own securities, during the same period they purchased over $7 billion of their own and other securities. During the late twenties, because of the large volume of purchases of securities of subsidiaries and affiliates, these concerns purchased rather than sold securities net. In the expansion of the middle thirties, on the other hand, because of the small volume of acquisitions, these manufacturing corporations as a group sold more securities than they purchased. For the period as a whole, the proceeds of many security issues of large manufacturing corporations were utilized to acquire existing equities. Thus during these years our sample of industrial giants financed the major part of their operations without drawing on the savings of the public.

Thus our findings indicate that during the two decades of the twenties and thirties certain changes in the financing of large corporations have occurred because of changes in the demand for funds while others have occurred because of changes in the availability of sources of supply. In the case of our sample of public utility companies there was a decided decrease in fixed property expenditures over the period. This was not true at all of our sample of large manufacturing corporations, and only to a slight extent of trade. Concerns in all industries ceased to acquire large volumes of securities in other companies. The manufacturing corporations in our sample decreased somewhat the volume of their customer financing, but their inventory remained about the same, and their cash and marketable security holdings increased, relative to total assets and to the volume of business done. Large trade corporations, on the other hand, came to finance their customers to a greater extent, maintaining roughly the same volume of inventory and a greater volume of liquid assets relative to sales and total assets.

Over the two decades as a whole short-term borrowings of large corporations decreased relative to other sources, although during the expansion of 1933–37 they sustained a greater relative increase than any other source of funds. In all industries funds retained from operations were less relative to the sum of all other sources of funds during the thirties than during the twenties as a result of the combined effect of decreased profitability and a higher ratio of net income paid out in dividends. This was particularly true of railroads. Security sales were greater relative to other sources of funds during the late twenties than during any other period of expansion. In the case of public utility companies, security sales during the thirties have been much less than those of years of comparable business activity in the twenties. This has been due primarily to the low levels of fixed property expenditures of public utility companies in recent years. In manufacturing and trade, however, the dollar volume of security sales during certain years in the late thirties reached the levels of comparable years in the twenties. Even more noteworthy is the fact that in manufacturing new funds from the securities market rose as a percent of undistributed earnings from 52 percent in the twenties to 187 percent in the thirties.

• 1 •

INTRODUCTION

BIGNESS CHARACTERIZES THE American nation. This is true, whether we are speaking of automobiles or skyscrapers, political campaigns or economic depressions. It is true, too, of the size of our business enterprises. In 1940 the United States Steel Corporation, for example, employed over a quarter of a million people, paid out wages which aggregated almost half a billion dollars, and sold products totaling over a billion dollars.

There are probably about 2½ million business enterprises in this country. Partnerships amount to roughly 10 percent; corporations, 20 percent; and individual proprietorships, 70 percent. Despite their small number, corporate enterprises are responsible for the lion's share of the business done in most industrial classifications: practically 100 percent in electric light and power, and manufactured gas, about 90 percent in manufacturing, mining, and transportation, and 60 percent even in trade. Corporations with total assets over $5 million constitute only a little over 1 percent of the total number of corporations, but they are responsible for almost 50 percent of all business done.

Reasons for the growth of large-scale enterprise are not hard to find. In the first place, modern mechanical and chemical processes demand large capital outlays for their development. One continuous strip hot and cold rolling and finishing plant with its ancillary facilities may require an investment of $60 million. The average ton of steel requires a capital investment of almost $200. Du Pont's original plant expenditure for the production of the textile fiber Nylon was well over $8 million, to say nothing of substantial continuing outlays for research on the product.

In financing, also, there are economies in large-scale operations. Recent studies by the Securities and Exchange Commission, for example, have indicated that the relative cost of flotation of securities decreases substantially both with size of issue and with size of issuing company.[1]

Aside from the technological and economic motives for the development of large enterprises, there have been legal and psychological ones. Psychology may explain the widespread gratification of human beings in size, as evidenced by the tone in which people speak of the biggest Idaho potato, the highest skyscraper, the biggest football crowd, the largest industry. Legally, the Sherman Act encouraged the intercorporate holdings of securities and thus the formation of large corporations by outlawing collective action among separate enterprises. The Clayton Act, in turn, encouraged the acquisition of actual physical properties by regulating intercorporate holdings of capital stock.

This growth in the size of enterprises has been a development of importance to many aspects of the American economy. It has brought with it such problems as arise out of the disappearance of the personal relationship between employer and employee and between producer and consumer, the separation of ownership and control, and the centralization of policy-making in a few hands. It has also brought with it important changes in business financial requirements and sources of capital and credit. The primary purpose of this study is to define and analyze these changing financial requirements and changing sources of capital and credit for large American business corporations.

SOURCES OF DATA

The analysis is restricted to large corporations in the fields of manufacturing, trade, transportation, communication, and electric light and power. Financial information for manufacturing covers 84 large manufacturing companies in 11 industries and for trade covers 14 large department stores and 13 large trading companies in 4 industries.[2] Data are drawn chiefly from published sources, although information on the 14 department stores was secured in collaboration with, and from the files of, the Harvard Bureau of Business Research. In addition, some of the tabulations for the years 1930–39 were furnished by the Board of Governors of the Federal Reserve System[3] and were based on the annual manuals of *Industrials* of Moody's Investors Service. The remaining tabulations for the period and all tabulations for the years 1921–29 were prepared by the National Bureau of Economic Research. The sources were standard investment manuals, New York Stock Exchange Listing Applications, the *Commercial and Financial Chronicle,* annual reports to stockholders, bond indentures, security description circulars, reorganization materials, letters to stockholders, and newspaper clippings.[4]

Data on railroads came largely from the testimony presented by John W. Barriger of the Railroad Division of the Reconstruction Finance Corporation before the Temporary National Economic Committee.[5] This material was based on the published records of the Interstate Commerce Commission,[6] which were in turn based upon the sworn statements of individual railroads. Statistics of telephone companies were drawn from the *Annual Reports to Stockholders* of the American Telephone and Telegraph Company and from original tabulations prepared by the Federal Communications Commission for its recent investigation of the telephone industry.[7] Financial data on electric light and power companies are more fragmentary. They were secured largely from the annual publications of the Edison Electric Institute[8] and such trade journals as *Electrical World* and *Public Utilities Fortnightly.*

The period selected for analysis was restricted to 1920–39 inclusive.[9] This two-decade span has been a memorable one in the annals of American economic life. It lies between the first and second World Wars and includes most of the business and financial conditions known to man, slight and prolonged depressions, mild recoveries and immoderate prosperities.

COVERAGE OF THE STUDY

The coverage of railroads, telephone, and electric light and power companies is practically complete. Large corporations dominate these industries. Although in the main the railroad data pertain only to Class I railroads and their lessor companies—that is, railroads with an annual gross revenue in excess of $1 million—these roads accounted for about 98 percent of the gross revenue of the industry and carried about that proportion of the traffic of the country. Our study of the telephone industry is restricted to the Bell System which is dominant in the field of telephonic communication. In 1937, there were almost 20 million telephones in the United States, of which over 79 percent were in the Bell System.[10] Total telephone operating revenue in 1937 was $1,180 million, of which $1,051 million (89 percent) was attributable to the Bell System.[11] Most of our data on electric light and power companies are estimates for the entire industry, excluding Federal hydroelectric projects but sometimes including rural cooperatives.

Within manufacturing, coverage is over two-thirds in four industrial groups—meat packing, petroleum, rubber, and tobacco. In certain branches of manufacturing and trade, however, large corporations are not dominant; coverage of food companies (other than meat packers) and of textile companies is low because of the presence in these industries of many small, often unincorporated, concerns. In trade, coverage is particularly high for variety stores (5 and 10 cent stores) and mail-order houses.[12] Over 90 percent of the sales of variety stores in 1935 were made by a small number of large chains.[13] Our coverage of total trade (9 percent) is much smaller than our coverage of manufacturing (26 percent) because of the great number of small, unincorporated enterprises that are engaged in trade.

In Table 1, the 1937 (in the case of petroleum, 1938) sales of

Table 1—SALES OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS COMPARED WITH THE VALUE OF PRODUCT OF ALL BUSINESS ENTERPRISES FOR 1935, 1937 or 1938, BY INDUSTRY[a] *(dollar figures in millions)*

Industry	*Value of Product of All Business Enterprises*	*Sales of Manufacturing and Trade Sample*	*Sales of Sample as a Percent of Value of Product of All Business Enterprises*
Manufacturing	*$60,713*	*$15,512*	*26%*
Automobiles and trucks	5,176	2,699	52
Building materials and equipment	2,229	467	21
Chemicals	3,722	713	19
Food other than meat packing	8,479	287	3
Iron and steel	7,480	2,143	29
Machinery	6,299[b]	1,154	18
Meat packing	2,787	2,179	78
Petroleum	5,000	3,744	75
Rubber	883	750	85
Textiles	7,062	197	3
Tobacco	1,273	864	68
Retail trade	*33,161*	*2,853*	*9*
Department stores, general merchandise mail-order houses	3,311	760	23
Grocery and combinations stores	6,352	1,250	20
Shoe and furniture stores	1,206	40	3
Variety stores[c]	1,007	803	80
TOTAL	$93,874	$18,365	20%

[a] Data on the value of product of all business enterprises in manufacturing industries except petroleum were estimated from the *Census of Manufactures, 1937*; those on petroleum (which pertain to 1938) are from Roy C. Cook, *Control of the Petroleum Industry by Major Oil Companies*, TNEC Monograph No. 39, p. 1; and those on trade are from "Retail Distribution," *Census of Business, 1935*, Vol. 1. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] Includes electric cars and locomotives.

[c] Includes J. C. Penney.

our sample of 84 large manufacturing corporations in 11 industries and the 1935 sales of 27 large trade corporations in 5 industries are compared with the value of product of all manufacturing and trade enterprises.[14] Although the classifications are not strictly comparable, the table gives a rough indication of the coverage of this sample. Since the Census data on value of product are for "establishments" regardless of ownership, intercompany sales are included. As our sample excludes such sales, its coverage is probably underestimated.

In Table 2 the total assets of our sample of large manufacturing and trade corporations are compared (1) with those of all manufacturing and trade corporations, and (2) with those of all manufacturing and trade corporations with total assets over $10 million.

Table 2—Total Assets of All Corporations, All Large Corporations, and a Sample of Large Manufacturing and Trade Corporations, 1933, by Industry[a]
(dollar figures in millions)

	TOTAL ASSETS				
Industry	*All Corporations*	*All Large Corporations*[b]	*Manufacturing and Trade Sample*	*Sample as a Percent of All Corporations*	*Sample as a Percent of All Large Corporations*
Manufacturing	*$57,753*	*$36,912*	*$16,588*	*29%*	*45%*
Automobiles and trucks	3,155	2,241	1,261	40	56
Building materials and equipment	1,866	816	528	28	65
Chemicals	5,014	3,302	1,152	23	35
Food including meat products	6,251	3,866	1,108	18	29
Iron and steel including machinery	15,403	10,937	4,759	31	44
Petroleum	8,182	8,084	6,292	77	78
Rubber	1,183	968	619	52	64
Textiles	4,598	1,353	192	4	14
Tobacco	1,033	901	677	66	75
Trade	*15,654*	*4,463*	*1,205*[c]	*8*	27
TOTAL	$73,407	$41,375	$17,793	24%	43%

[a] Data on all corporations were computed from *Statistics of Income for 1933*, Part 2. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] Corporations with total assets over $10 million.

[c] Retail trade only.

Our combined sample, responsible for at least one-fifth of the sales of all business enterprises engaged in manufacturing and trade (Table 1), possessed almost one-quarter of the assets of all corporations, and more than two-fifths of the assets of all big corporations in these two industrial groups.[15] Again the industrial classifications are not strictly comparable, but the table gives a rough indication of coverage.[16] Comparison is made for 1933, the last year in which the Bureau of Internal Revenue permitted the filing of consolidated returns. A comparison of the sample with *Statistics of Income* data for subsequent years would necessitate the use of inflated industry balance-sheet totals as compared with the totals of the consolidated balance sheets which make up our sample.

Within manufacturing, the total assets of our sample comprised 29 percent of the total assets of all corporations, and 45 percent of those of all corporations with assets over $10 million. In general, the individual industries in which the coverage was highest were the same as in Table 1. *Statistics of Income* does not classify retail trade corporations separately by size of corporation. However, our sample had 8 percent of the total assets of all trade corporations and 27 percent of those of all trade corporations with assets over $10 million.

The sample is dominated not only by large corporations but also by profitable corporations in heavy industries. Moreover, they have experienced greater relative growth during the past two decades than smaller concerns or concerns in other industries. In Table 3 the percentage changes in sales of those corporations for which sales data are available in 1923 and 1937 are compared to the percentage changes in value of product of all business enterprises, by industry. The behavior of our sample is in sharp contrast with that of manufacturing and trade as a whole. Sales were 67 percent greater in 1937 than in 1923, while for all business enterprises in these two industrial categories value of product increased but 6 percent. For manufacturing, increases for the sample and for the universe were 53 and 4 percent respectively, while for trade our sample's sales increased 161 percent and total retail trade sales (as measured by the flow of goods to consumers) increased only 8 percent.

In the major manufacturing industries, the growth of our sample was greater than the growth of the entire industry in all divisions except food and meat packing. In the automobile and truck, chemical and petroleum industries the growth in sales for our sample was much greater than for these industries as a whole.

METHODS OF ANALYSIS

Two different but complementary methods of analysis were utilized in studying the financial data of these large corporations. First, aggregate and median balance-sheet and sales ratios were computed. Second, these ratio studies were checked and supplemented by the results of what accountants call a "source and application of funds analysis." This accounting analysis is explained in greater detail in Appendix B. Briefly, its purpose is to

Table 3—PERCENTAGE CHANGES IN VALUE OF PRODUCT OF ALL BUSINESS ENTERPRISES AND IN SALES OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS FROM 1923 TO 1937, BY INDUSTRY[a]

Industry	*Change in Value of Product of All Business Enterprises*	*Change in Sales of Manufacturing and Trade Sample*
Manufacturing	4%	53%
Automobiles and trucks	−2	146
Building materials and equipment	−11	64
Chemicals	20	213
Food other than meat packing	27	[b]
Iron and steel	10	14
Machinery	14	28
Meat packing	8	8
Petroleum	42	133
Rubber	−8	45
Textiles	−26	−13
Tobacco	22	47
Retail trade	*8*	*161*
TOTAL	6%	67%

[a] Data on the value of product of all business enterprises in manufacturing industries are estimated from the *Census of Manufactures* for 1923 and 1937. Since no sales or value of product data are available on total retail trade for 1921, the percentage increase in total flow of consumers' commodities from 1923 to 1937 as estimated by Kuznets is used to indicate the approximate growth of total retail sales. See National Bureau of Economic Research, *National Income and Capital Formation, 1919–1935*, by Simon Kuznets (1937) p. 56 and by the same author, Bulletin 74, *Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932–38* (June 25, 1939) p. 2. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] Less than .5 percent.

indicate the source and volume of funds received, and use and volume of funds expended by business concerns when such movements of funds affect major balance-sheet items between two fiscal year ends. The analysis excludes all balance-sheet changes which are the result of purely bookkeeping transactions, for example asset revaluations and stock dividends, which do not in fact involve a flow of funds. Account is also taken of non-cash charges and credits to income which conceal or indicate factitious flows of funds. In general such an analysis affords an integrated statement of the absolute and relative importance of different sources and expenditures of funds as well as an indication of their relationships.

COMMENTS ON THE NATURE OF THE DATA AND THEIR ANALYSIS

Certain peculiar characteristics of the data and their analysis should be noted at the outset. First, the study is based primarily upon data appearing on the books of business corporations. Although account has been taken of all purely bookkeeping transactions since 1920, the data at the beginning of the period (usually at December 31, 1920) were taken as reported by the individual concerns even though they may have been affected by previous revaluations. Therefore analysis of changes in financial requirements is undoubtedly more accurate than analysis of the absolute level of balance-sheet proportions at any given point of time.

Second, in the case of the National Bureau's original tabulations of large manufacturing and trade corporations, consolidated rather than unconsolidated financial statements were used whenever available. As a result, all flows of funds between parent and subsidiaries and among subsidiaries are eliminated. However, since one of the primary interests of this study is the relationship between business enterprises and financial institutions, this combining of enterprises with common ownership and control in one company is desirable.

An inherent characteristic of the data themselves is their variation due to the differences in accounting and bookkeeping practices of individual concerns. When these differences were apparent and important, they have been noted in the text. For example, the greater importance of maintenance as contrasted to depreciation accounting in public utilities, particularly railroads, has been pointed out. Another case that comes to mind is the difference in methods of recording expenditures on retail stores utilized by the two large mail-order houses, Sears, Roebuck & Co. and Montgomery Ward & Co. The former records such expenditures as increases in property while the latter records them as investments in a subsidiary which was organized solely to handle its retail store business.

One inherent analytical difficulty concerns the interpretation of financial statement items as reported by business concerns. For example, the major part of the notes payable reported by these large corporations have been assumed payable to banks. A study of recent industry reports of the Federal Trade Commission, in which breakdowns of notes payable to banks and to others are available, indicates that this assumption is valid.[17] Certain other more or less arbitrary interpretations of financial statement items are made throughout the analysis.

Another difficulty concerns the treatment of variation in individual company behavior within industries as commonly defined. When business enterprises become as large as those in our sample, their activities are often so diverse that it is difficult to classify them into single industrial categories. In addition, when we have only a few cases in any industrial grouping, references to "typical behavior" are of dubious propriety. The emphasis in most of the following discussion is therefore placed upon aggregate, rather than upon representative, behavior of large corporations within industries. However, whenever there does appear to be a surprising similarity or dissimilarity of individual company behavior within industrial groups, the similarity or dissimilarity is noted.

Finally, mention should be made of the method of handling mergers, consolidations, and acquisitions. Acquisitions of other companies were considered expenditures of funds even though such acquisitions often involved merely the exchange of securities. In order to get a complete coverage of such expenditures it was sometimes necessary to make adjustments to reported balance sheet changes. For example, when General Motors acquired Fisher Body in 1926 and immediately consolidated it in financial statements, the expenditure was reflected on the balance sheet by changes in the specific assets acquired and liabilities assumed rather than as an investment in a subsidiary. In this case an adjustment was made to show the expenditure as an acquisition of a subsidiary.[18] On the other hand, when a merger took place—as for example the merger of American Radiator Company and Standard Sanitary Manufacturing Company in 1929 to form the American Radiator-Standard Sanitary Corporation—no expenditure on the acquisition of a subsidiary was recorded. In such cases it was sometimes necessary to construct an estimated consolidated balance sheet for the year prior to the merger. When acquisitions and mergers were important, the financial data were included for years prior to the acquisition or merger as well as for subsequent years.

✓ THE EFFECT OF SIZE AND PROFITABILITY ON CORPORATE FINANCIAL STRUCTURE

The financial structure of a given business concern is affected not only by the type of industry in which it is engaged but also by its size and profitability. Some of the effects of these two variables, not discussed elsewhere in this study, should be noted briefly.

The importance of cash plus receivables and of inventory relative to total assets varies inversely with size of corporation. In the case of cash plus receivables, in 1937 the proportion decreased from 27 percent for small corporations to 18 percent for medium-sized corporations and to 10 percent for large corporations. In the case of inventory, it decreased from 20 to 15 to 8 percent, respectively, for the three size classes.[19]

On the other hand, property (land, buildings and equipment less depreciation and depletion) and "other assets" (including marketable and other security investments) as a percent of total assets varied directly with the size of corporation.

Notes and accounts payable in 1937 made up a smaller portion of total liabilities as size of corporation increased. Notes payable decreased from 11 to 6 to 2 percent, and accounts payable from 16 to 9 to 5 percent, respectively, in the three size classes. Long-term debt and the sum of common stock and surplus, on the contrary, showed a positive variation with size.[20]

The percentage distributions of the total assets and liabilities of all income and deficit corporations reporting to the Bureau of Internal Revenue also differed significantly in 1937. Profitable corporations had a greater proportion of their assets in a liquid (current) form than unprofitable corporations. Among the liabilities, unprofitable enterprises had a greater proportion of short-term and long-term indebtedness and a smaller proportion of net worth. Thus in spite of their relatively greater fixed assets, deficit corporations had more indebtedness and less net worth than income corporations.

Since this study is restricted to large, and for the most part profitable, corporations, and since financial structure and capital and credit requirements vary with size and profitability, its findings are not applicable to all business enterprises. Companion studies of the National Bureau's Studies in Business Financing are concerned with other segments of the American business economy.

• 2 •

FIXED CAPITAL EXPENDITURES

WHEN WE THINK OF LARGE CORPORATIONS, we think in terms of acres of factories belching smoke. We think of huge machines stamping automobile bodies in single, heavy strokes, or of blast furnaces tipping out streams of molten iron. These impressions are correct as far as they go. Large corporations are most common in those industries whose technological processes demand large-scale plant and equipment, as in the iron and steel, and petroleum, industries. In addition, fixed or "long-lived" capital makes up a greater part of the total assets of large than of small corporations.

For purposes of this study, fixed capital is divided into property and investments in subsidiaries and affiliates. Property includes land, plant, buildings, machinery, equipment, and fixtures. In this chapter we are interested in discovering what have been the fixed property expenditures of large corporations during two decades; whether they have been as large in the late thirties as they were in the late twenties; and whether changes in their volume have tended to lead or to lag behind changes in business activity. We want to know also how the technological and economic conditions of individual industries have affected the volume and variation of their fixed property expenditures, and how such expenditures have been related to annual depreciation, depletion, and amortization charges as well as to sales volume.

As for the other broad category of fixed assets, investments in subsidiaries or affiliates, what has been their dollar volume during the past twenty years? Have they been concentrated in certain industries? Did they take place during the prosperous years of the late twenties or were they "bargain purchases" during the great depression?

VOLUME AND FLUCTUATIONS OF FIXED PROPERTY EXPENDITURES

Property, unlike certain other business assets (for example, inventory), is purchased for use in the day-to-day operations of a business rather than for subsequent sale. It is usually long-lived, containing a stock of services which are "used up" over an extended period of time through wear and tear and obsolescence. Property in fact may never wear out if it is adequately maintained. Perishable raw materials must be purchased continuously while expenditures for factory maintenance or new plant construction can sometimes be postponed for years. This characteristic of property expenditures, as well as their dollar magnitude, makes their study of great importance in an analysis of corporate financial requirements.

In 1937, business property absorbed from one-third to one-half of the $17.5 billion of durable goods produced in that year.[1] An estimate made by George Terborgh of the Board of Governors of the Federal Reserve System for new durable producers' goods (plant and equipment) in 1937 amounts to $7.6 billion, distributed among broad industrial groups roughly as follows: [2]

	Amount (billions)	*Percent*
Mining and manufacturing	$3.1	41%
Commercial and miscellaneous	2.0	26
Agriculture	.9	12
Railroads	.5	7
Electric light and power	.4	5
Telephones	.4	5
Other utilities	.2	3
Transit	.1	1
TOTAL	$7.6	100%

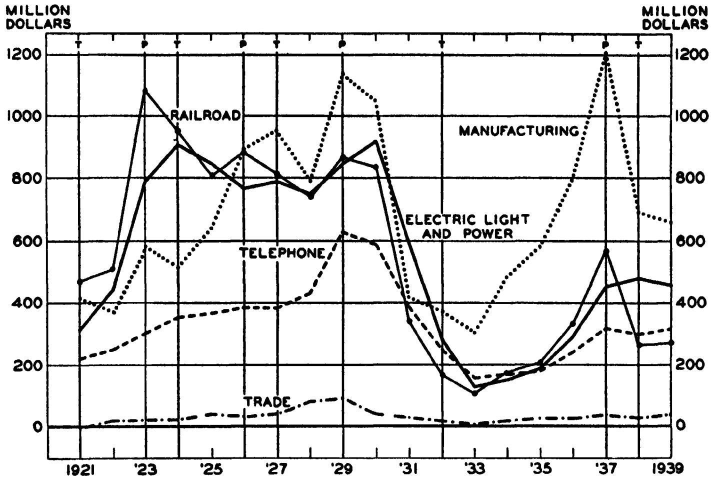
Fixed property expenditures [3] of big business have fluctuated violently during the past two decades. The 1933 expenditures of large corporations in all five broad industrial categories were only a fraction of 1929 expenditures. This precipitous decline was due, of course, to the inflated level of property expenditures during the late twenties as well as to the decline in sales and profits in the early thirties which affected future expectations and, consequently, expansion programs.

The 1930 property expenditures of many of the large corporations in our sample were almost equal to their 1929 expenditures, primarily because of the completion of large-scale expenditures which had been begun in earlier years.

As a group the 80 large manufacturing corporations represented in Chart 1 had larger fixed property expenditures in 1937 than in 1929. Expenditures in 1933, on the other hand, were but a little over one-quarter of 1929. The sample is, however, weighted by profitable, long-lived, heavy industries. The expenditures of these

CHART 1 ✓

FIXED PROPERTY EXPENDITURES OF LARGE CORPORATIONS, BY INDUSTRY, 1921-39[a]



[a] Based on Tables A-26, A-50, A-56, A-57 and A-58 in Data Book.

manufacturing corporations compared with those of all manufacturing enterprises in 1929, 1933 and 1937 were as follows: [4]

	All Manufacturing		*Manufacturing Sample*		*Sample as a Percent of All Manufacturing*
	Amount (millions)	Index (1929 = 100)	Amount (millions)	Index (1929 = 100)	
1929	$2,739	100%	$1,135	100%	41%
1933	717	26	307	27	43
1937	2,160	79	1,205	106	56

It will be noted that our sample of large corporations accounted for an increasing proportion of total fixed property expenditures. Breaking down the manufacturing sample into major industries, we have the following proportions of fixed property expenditures:

	Percentage of 1929	
	1933	1937
Textiles	140%	510%
Tobacco	53	94
Meat packing	35	88
Petroleum	33	99
Chemicals	26	127
Machinery	21	127
Automobiles	17	97
Iron and steel	16	189
Food other than meat packing	14	51
Building materials and equipment	14	52
Rubber	13	53

The large percentages for textile concerns in both 1933 and 1937 were due to the depressed state of the industry in 1929, with resultant low expenditures on fixed property, and also to the increased use of rayon, necessitating plant expansion and alteration. The large percentage for iron and steel companies in 1937, on the other hand, was due primarily to the construction of continuous sheet and wide strip mills. In that year four such mills were built, with an annual capacity of more than two million gross tons.[5] Since 1929 the chemical industry has shown exceptional growth. This has been due to an expansion in sales of old products as well as to the development of new products. Monsanto Chemical Co., for example, has reported to stockholders that products they began to manufacture after 1929 accounted for 39 percent of total sales by 1939.[6] The drop in fixed property expenditures of building material and equipment corporations from 1929 to 1937 was due to the continued low volume of private construction.

Among individual companies we find that 39 of the 80 manufacturing concerns had higher fixed property expenditures in 1937 than in 1929. By industries, the number of individual concerns which expended more or less on property in 1937 than in 1929 was as follows:

	More	*Less*
Textiles	6	1
Chemicals	4	2
Iron and steel	5	3
Automobiles	4	3
Food other than meat packing	3	3
Meat packing	2	2
Tobacco	1	1
Machinery	6	8
Petroleum	4	8
Rubber	2	4
Building materials and equipment	2	6
TOTAL	39	41

Large concerns in every industry, excepting textiles, decreased their expenditures drastically during the great depression, five (rubber, building materials and equipment, iron and steel, food other than meat packing, and automobiles) to less than one-fifth of 1929 expenditures. Of the eleven manufacturing industries analyzed, seven reached the low point of the early thirties in 1933, and four in 1932.

Property relative to total assets is less important in trade than in manufacturing. While the fixed property expenditures of the manufacturing sample decreased 73 percent from 1929 to 1933, those of trade decreased 87 percent. In 1937, the net property (land, buildings and equipment, less depreciation and depletion reserves) of all manufacturing corporations was 39 percent of total assets; for our sample it was 51 percent. For all trade it was only 19 percent; for our sample it was 34 percent.[7] Nevertheless, the fixed property expenditures of large trade corporations were quite substantial during the two decades.

Several characteristics of large trade corporations might have led us to expect a more even rate of property expansion than actually occurred during this period. First, the sales of retail trade corporations are more stable than those of manufacturing corporations. The sales of 27 trade and 60 manufacturing concerns were as follows:

	Trade		*Manufacturing*	
	Amount (millions)	Index (1929=100)	Amount (millions)	Index (1929=100)
1929	$3,120	100%	$12,857	100%
1933	2,410	77	6,097	47
1937	3,306	106	12,886	100

Second, the profits of large trade concerns over the period studied tended to be greater and more stable than those of other large corporations. Professor Crum's estimates from *Statistics of Income* data of the rate of profit (or loss) after taxes to estimated average stockholders' equity for all manufacturing and trade corporations with total assets over $50 million are as follows: [8]

	Trade	*Manufacturing*
1931	4.24%	1.71%
1932	2.59	—.23
1933	6.09	1.72
1934	9.05	3.84
1935	8.38 [a]	6.68
1936	11.01 [b]	8.46 [b]

[a] Includes corporations in the $10-50 million size classes.
[b] Arithmetic averages of the $50-100 million and over $100 million size classes.

Third, the technological characteristics of the property of most of the trade concerns in our sample would enable the individual concern to expand gradually rather than discontinuously. In order to expand its selling facilities, S. S. Kresge, for example, has but to build or lease a store, to furnish and equip it. A relatively small outlay is required for such expansion. If, on the other hand, Standard Oil of New Jersey wants to build a new refinery or

United States Steel wants to construct a new continuous strip mill, large outlays are required.

In spite of the relatively stable sales and earnings positions of large trade concerns and the technological conditions making piecemeal expansion possible, fixed property expenditures have exhibited large cyclical fluctuations during the past two decades. A possible explanation for these large fluctuations is that the executives of the chain stores that dominate our sample may consider expansion by territory rather than by store a unit expenditure. The fact that great property expenditures occur during years of prosperity rather than during years of depression when costs are low is to be explained in terms of the reluctance of business to make large-scale, permanent expenditures during depression years.

The fixed property expenditures of large trade corporations, contrary to those of large manufacturing corporations, were substantially less in 1937 than in 1929. In the late twenties chain systems leased, bought, and built stores on a large scale. It was during these years that the mail-order houses began to establish retail stores. Sears, Roebuck & Co. expended $148 million on fixed property from 1925, the year in which its first retail store was built, to 1939; $97 million of this amount was used to develop its retail store system.[9] In the thirties, however, expansion was retarded by taxation and restrictive legislation.

The fixed property expenditures of department stores were also substantial during the late twenties. During this period the department store executive sought to attract customers to his store by creating in their minds an impression of its magnitude, prosperity and luxury. Expenditures took the form of frequent general redecoration and of new facilities such as escalators. Thus substantial property outlays are made not only by growing industries but also by industries that have reached their peak or are losing their relative share of the market. In these cases they represent a form of non-price competition. Since the depression, however, statements by trade executives (particularly department store officials) in trade journals show a pronounced change of attitude. It is evident that rapid fashion changes have led to the use of inexpensive modern construction materials and methods.[10]

The dollar sales of our sample of 14 large department stores exhibited no particular trend during the two decades. Certainly during this period department stores have been feeling more and more the effect of competition from other types of retail outlets which have been experiencing rapid growth. The sales of mail-order houses, for example, have trebled and those of chain variety stores have more than doubled since the early twenties. The combined sales of J. C. Penney and W. T. Grant have almost quadrupled since 1923–25.

Railroad expenditures in the early twenties were high because of the years during World War I in which railroads deferred property expenditures. The largest annual expenditure[11] was reached in 1923, when fixed property expenditures amounted to $1,080 million. Sizable expenditures were also made in the relatively prosperous years of 1924–29. These included expenditures on additions, betterments, new lines, extensions of transportation property, and on miscellaneous physical property not specifically related to railroad operation. The major portion of expenditures during this period (possibly 95 percent) went for additions and improvements to existing railroad property.

Railroads also made large expenditures in 1930. As in the case of trade companies, however, railroad expenditures on fixed property failed to rise in the thirties to the level of the twenties. In fact, the 1937 volume was exceeded in all years of the twenties except 1921 and 1922.[12] This lack of expansion is a corollary of the failure of the volume of carloadings and railroad profits to reach the level of the twenties. In addition, the terminal building of the earlier period far exceeded the current demands for such facilities.

Fixed property expenditures of the telephone industry averaged $391 million per year during the period 1921–30, $244 million in 1931–34, and $273 million during the years 1935–39. A great increase in property took place during 1924–30 when new buildings, main conduit routes, and cables adequate to supply service for many years were constructed. During this period the long-lines plant expanded almost threefold. A slower rate of expansion of demand in the thirties made a repetition of this type of expenditure unnecessary. However, there was a tendency for the curve to rise in 1937 (see Chart 1).

The electric light and power industry has also made a substantially smaller volume of fixed property expenditures since 1930. Whereas such expenditures averaged about $739 million during the years 1921–30, they dropped to a $338 million average in 1931–39. In the decade preceding the depression the utilities constructed 50 percent of their combined property account.[13] Many of these expenditures were large, non-continuous outlays on generating stations which, once completed, could serve communities for decades. During the twenties electric light and power company officials thought of their industry as a continuously expanding one.

The large drop in expenditures after 1930 appears to have been as much a result of the exceptionally large expansion during the late twenties as it was a result of declining sales and operating revenues, and increasing legislative controls. During the thirties expenditures on transmission and distributing plants have absorbed the lion's share of electric light and power outlays. This development has been due both to the greater expansion in rural areas, requiring as it does greater relative expenditures on transmission and distribution facilities, and to the more efficient use of generating plant and equipment.

FIXED PROPERTY EXPENDITURES, DEPRECIATION, AND PROPERTY REVALUATIONS[14]

Business property expenditures are made to replace as well as to expand productive facilities. No satisfactory statistical method is available, however, to distinguish between replacements and new property expenditures. One method commonly used is to compare fixed property expenditures with the accounting depreciation accruals charged to income. These annual charges, however, are only loosely related to replacement. The primary function of depreciation charges is to indicate roughly the magnitude of property costs attributable to specific goods and services. Historically, these charges have been greatly affected by corporate income tax legislation, although tax administrators have attempted through frequent consultations with officials in specific industries to set rates consistent with the original cost, life, and salvage value of the property.

Replacement obviously does not take place in discrete units like depreciation accruals but rather in non-continuous mass expenditures quite large in relation to the size of the concern. Once a piece of property, say a factory, has been constructed, even though depreciation is accrued annually thereafter, replacement may not, and probably does not, occur until many years have passed. Even when replacements are made, they need occur neither when the factory has been written off completely, nor when it has been worn out physically. They may be made, for example, as a result of technological change or the development of a new product.[15]

The charging of depreciation, the retirement of property, and property expenditures, whether for replacement or additions, are independent decisions of management not immediately connected one with the other. Over a very long period of time, of course, all these items become identical.

The considerable independence of property expenditures and depreciation accruals is of particular importance to a study of financial requirements. Depreciation accruals are non-cash charges to income which (unless adjusted net income after dividends [16] is less than depreciation) represent a volume of disposable funds that can be used for property expenditures or, at least temporarily, for other corporate purposes.

The relationship between depreciation accruals and fixed property expenditures is also important for a study of the savings and investment of the national economy. Excess accruals over expenditures and excess expenditures over accruals of individual companies do not cancel out. Excess accruals are characteristic of most concerns during the recession and depression phases of the business cycle, while excess expenditures are characteristic of most concerns during recovery and prosperity.

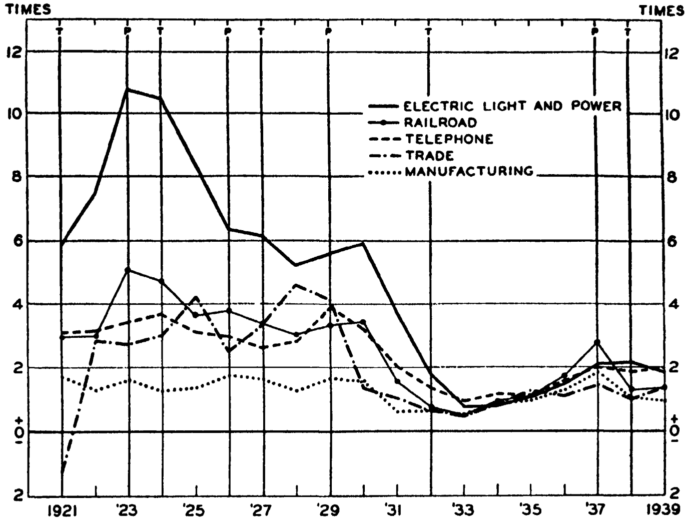
For business as a whole, fixed property expenditures in 1929 and again in 1937 were approximately one and one-half times depreciation accruals (see Chart 2). In 1932, on the other hand, they were but three-fifths of provisions for depreciation.[17] The relationship of the fixed property expenditures of our sample of large manufacturing corporations to their depreciation accruals was very similar to that of business as a whole. Over the entire period these corporations expended more on property than they set aside in depreciation accruals. The ratio fell from 1.5 in 1921–29 to .9 in 1930–33 and increased again to 1.2 in 1934–39. From an annual low of .6 in 1933, the ratio reached an annual peak of 1.8 in 1937.

The size of this ratio is due to the fact that a large part of manufacturing property additions during the thirties was made by the heavy industries which are dominated by large corporations and hence are best represented in our sample. The variation in this ratio over the period is largely the result of the stability of depreciation accruals while expenditures were changing.

Among the major manufacturing industries, the four with the highest ratios of fixed property expenditures to depreciation for the entire period were chemicals, building materials and equipment, petroleum, and iron and steel. Only two industries, textiles and meat packing, spent less than their depreciation accruals on property during these years.

CHART 2

RATIO OF FIXED PROPERTY EXPENDITURES TO DEPRECIATION FOR LARGE CORPORATIONS, BY INDUSTRY, 1921-39[a]



[a] Based on Tables A-26, A-50, A-56, A-57 and A-58 in Data Book.

It is evident that the rate of increase in property tends to be greatest in expanding manufacturing industries, as shown in the rankings by percentage increase in average annual sales from 1921–23 to 1937–39 and by the ratios of fixed property expenditures 1921–39 to aggregate property at the beginning of the period:

	Rank by Percentage Increase in Sales	*Rank by Ratio of Expenditures to Aggregate Property*
Chemicals	1	3
Automobiles	2	4
Petroleum	3	1
Building materials and equipment	4	2
Tobacco	5	5
Rubber	6	6
Machinery	7	7
Iron and steel	8	10
Meat packing	9	8
Food other than meat packing	10	9
Textiles	11	11

The ratio of fixed property expenditures to depreciation fluctuated markedly over time for practically all of the various industries. During the depression years, corporations, even when their current sales and profit positions were relatively favorable, were unwilling to anticipate the future by modernizing and expanding their plant and equipment, although the cost of doing so was low relative to prosperous years. In tobacco, for example, although sales dropped only 13 percent and net income before dividends actually increased 22 percent from 1929 to 1932, the fixed property expenditures/depreciation ratio dropped from 2.8 to 1.4, or 50 percent.

The group of trade corporations expended about one and three-fourths times their depreciation accruals on property. The fixed property expenditures/depreciation ratio was above 1 in every year since 1921 except during the period 1932–34, averaging 2.9 in 1921–29, .9 in 1930–33, and 1.2 in 1934–39.

Among the major trade groups, chain variety stores had the largest ratio, 2.1. The magnitude of the department store ratio, 2.0, may be somewhat surprising in view of the lack of growth experienced by this branch of distribution. The explanation is probably to be found in competitive pressures necessitating property expenditures.

Factors other than changes in sales volume can be important in determining the magnitude of property expenditures as shown by the rankings of the various trade groups by the percentage increase in average annual sales from 1921–23 to 1937–39 and by the ratios of fixed property expenditures 1921–39 to aggregate property at the beginning of the period:

	Rank by Percentage Increase in Sales	*Rank by Ratio of Expenditures to Aggregate Property*
Mail-order houses	1	4
Chain grocery stores	2	2
Miscellaneous chain stores	3	3
Chain variety stores	4	1
Department stores	5	5

In the case of manufacturing industries a significant positive correlation between the rankings of major industries by these variables was secured; in trade, the correlation is not so clear. The large expenditures of chain variety stores relative to the increase in their sales may have been due in part to the acquisition of costly urban sites.

The ratio of fixed property expenditures to depreciation accruals and retirements of railroads was 2.5. This ratio decreased from an average of 3.7 during the twenties to 1.5 during the thirties. These data are not comparable to those in manufacturing and trade because of depreciation practices peculiar to the railroad industry.[18] For example, although expenditures to acquire cars and locomotives are depreciated over the expected life of the equipment, expenditures for maintenance of way and of equipment (unless they represent net additions to property) are charged directly to operating expenses. Structure and track are not depreciated, on the assumption that they never wear out in entirety if they are kept up to the required standard, the services being replaced as consumed. Railroads may depreciate such large structures as bridges and buildings, but even in such cases they are not required to do so by the Interstate Commerce Commission.

In the case of the telephone industry also, depreciation accruals are but one measure of property consumption, maintenance expenditures being as large as, if not larger than, depreciation. The Bell Telephone System expended about two and one-quarter times the volume of its depreciation and amortization accruals on "gross additions to telephone plant." In only one year, 1933, did gross additions fall below depreciation. There has been, however, a decided downward tendency in the ratio, despite the fact that toward the end of the period total telephone operating revenues equaled the peak level of the late twenties and early thirties.

Finally, the ratio of construction expenditures to depreciation and retirement accruals for electric light and power companies exhibited the most marked downward tendency, declining from an annual high of 10.7 in 1923 to an annual low of .8 in 1933. Since 1933 the ratio increased again to 2.1 in both 1937 and 1938. It is interesting to note that although this ratio has decreased markedly, it has been less than one in only two years, 1933 and 1934.

For a period of 19 years, depreciation accruals alone are very rough measures of the property "used up" (capital consumption, as it has sometimes been called). These accruals are only approximations of the decrease in value of fixed property over time, as evidenced by the numerous revaluations of property which business concerns make from time to time.

If depreciation and net property revaluations are taken as a measure of capital consumption and if capital consumption is taken as a measure of that portion of property expenditures that constitutes replacements rather than additions to property, the replacements of our combined sample of large manufacturing and trade concerns over the entire period amounted to 87 percent, the additions to 13 percent, of fixed property expenditures (Table 4).[19] The variation among major industrial classifications is great. The additions to property of our sample of large chain variety stores, for example, about equaled replacements. On the other hand, six major manufacturing groups—food other than meat packing, iron and steel, machinery, meat packing, rubber, and textiles—have failed to maintain the value of their property intact. Indeed, our large textile concerns have consumed almost twice the amount of property they acquired.

The changing importance of property revaluations relative to depreciation is indicated in Table 5. For the manufacturing corporations, net property writedowns were 8 percent of depreciation accruals; for trade, they were 6 percent. Property writedowns occurred more frequently than property writeups and were greater in dollar volume than property writeups. As might be expected, writedowns were heaviest in years of recession and depression. In 1932, for example, net property writedowns for the manufacturing sample amounted to $232 million, or 41 percent of depreciation accruals while for trade writedowns were $13 million, or 45 percent. The large manufacturing writedown in 1929, unusual for a prosperous year, was due primarily to property revaluations of the United States Steel Corporation. The only years in which substantial writeups occurred were 1921 and 1922. The major part of the dollar volume of these writeups was due to petroleum, meat packing, and mail-order companies.

FIXED PROPERTY EXPENDITURES AND SALES

Fixed property expenditures differ considerably among industries in relation to sales or total operating revenues. For example, there are great differences in ratios of fixed property expenditures to aggregate sales in the five major industrial groups for the period 1921–39 (electric light and power 1926–39) as shown below:[20]

Telephones	37.1%
Electric light and power	26.6
Railroads	11.1
Manufacturing	6.1
Trade	1.6

Table 4—FIXED PROPERTY EXPENDITURES, DEPRECIATION, AND PROPERTY REVALUATIONS OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921–39, BY INDUSTRY[a] *(dollar figures in millions)*

Industry	(1) *Number of Corporations*	(2) *Fixed Property Expenditures*	(3) *Depreciation*	(4) *Property Revaluations*[b]	(5) *Capital Consumption* (3–4)	(6) *Net Property Additions* (2–5)	(7) *Additions as a % of Expenditures*
Manufacturing	*80*	*$12,805*	*$10,376*	*$–878*	*$11,254*	*$1,551*	*12%*
Automobiles and trucks	7	1,029	920	–15	935	94	9
Building materials and equipment	8	431	291	–39	330	101	23
Chemicals	6	686	406	–73	479	207	30
Food other than meat packing	6	154	139	–29	168	–14	–9
Iron and steel	8	2,109	1,685	–449	2,134	–25	–1
Machinery	14	496	483	–38	521	–25	–5
Meat packing	4	325	329	–21	350	–25	–8
Petroleum	12	6,993	5,569	–131	5,700	1,293	18
Rubber	6	460	413	–61	474	–14	–3
Textiles	7	64	103	–22	125	–61	–95
Tobacco	2	58	38	[c]	38	20	34
Retail trade	*26*	*642*	*383*	*–24*	*407*	*235*	*37*
Chain grocery stores	4	166	125	–8	133	33	20
Chain variety stores	4	221	104	–4	108	113	51
Department stores	14	40	20	–8	28	12	30
Mail-order houses	2	201	125	–2	127	74	37
Miscellaneous chain stores	2	14	9	–2	11	3	21
TOTAL	106	$13,447	$10,759	$–902	$11,661	$1,786	13%

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] Net writeups are positive; net writedowns are negative.

[c] Less than $500,000.

Table 5—DEPRECIATION AND PROPERTY REVALUATIONS OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921–39[a] *(dollar figures in millions)*

	MANUFACTURING			TRADE		
Year[b]	*Depreciation*	*Property Revaluations*[c]	*Revaluations as a % of Depreciation*[d]	*Depreciation*	*Property Revaluations*[c]	*Revaluations as a % of Depreciation*[d]
1921 (T)	$251	$16	6%	$ 4.2	$ 8.3	198%
1922	290	33	11	5.7	.0	0
1923 (P)	361	4	1	6.8	[e]	[f]
1924 (T)	392	−29	−7	8.0	.7	9
1925	457	−1	[f]	9.9	[e]	[f]
1926 (P)	520	−26	−5	11 8	.1	1
1927 (T)	583	−17	−3	13.4	[e]	[f]
1928	627	−64	−10	17.3	−1.6	−9
1929 (P)	684	−135	−20	22.0	−2.3	−10
1930	651	−24	−4	27.6	−1.5	−5
1931	646	−57	−9	28.0	−5.8	−21
1932 (T)	571	−232	−41	29.2	−13.0	−45
1933	561	−75	−13	27.5	−4.0	−14
1934	559	−108	−19	26.8	−2.2	−8
1935	594	−84	−14	27.1	−1.3	−5
1936	622	1	[f]	29.2	−.9	−3
1937 (P)	659	−13	−2	29.6	−.4	1
1938 (T)	662	−46	−7	29.6	−.3	1
1939	687	−21	−3	30.0	−.3	1
AVERAGE ANNUAL VOLUME						
1921–39	546	−46	−8	20.2	−1.3	−6
1921–29	463	−24	−5	11.0	.6	5
1930–39	621	−66	−11	28.5	−3.0	−10
'30–33	607	−97	−16	28.1	−6.1	−22
'34–39	608	−51	−8	28.2	−1.2	−4

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] General business cycle peaks (P) and troughs (T), calendar-year dates as determined by W. C. Mitchell and A. F. Burns of the National Bureau of Economic Research, are so designated.

[c] Net writeups are positive; net writedowns are negative.

[d] Positive ratios are net property writeups; negative ratios are net property writedowns.

[e] Less than $50,000.

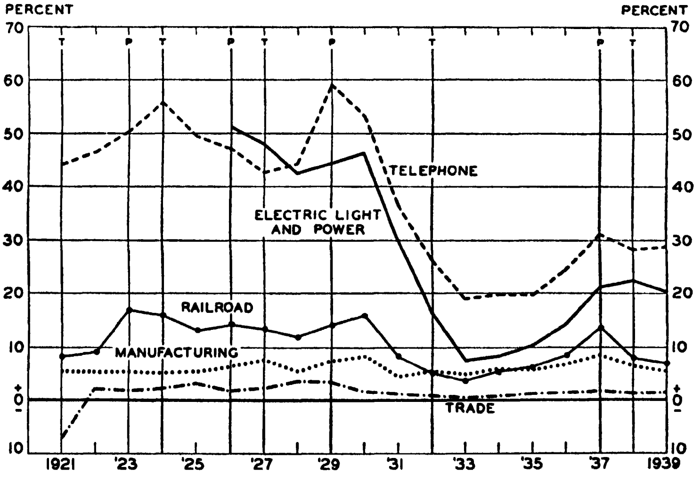
[f] Less than .5 percent.

These ratios reflect among other things differences in "value added" by the individual industries, the relative importance of fixed property among total assets, the relative age of the property and the relative maturity of the industry. The property of the Bell Telephone System comprised over four-fifths of its total assets in 1935 while the property of trade corporations made up only one-fifth of total assets in 1937. Although railroad property amounts roughly to the same proportion of total assets as that of telephone companies, the ratio of fixed property expenditures to operating revenues of railroads was much less than for telephones. This is due in part to the fact that the long-lived railroad assets were built prior to 1921 and have continued to function subsequently, while much of the expansion in telephone plant occurred during the twenties; and in part to the increased use of maintenance accounting by railroads.

The ratio of fixed property expenditures to sales exhibits marked irregularity for all of the broad industrial classifications (see Chart 3). This is due to the greater amplitude of the fluctuations in fixed property expenditures. For example, the sales of our sample of large manufacturing corporations declined but 35 percent in

CHART 3

RATIO OF FIXED PROPERTY EXPENDITURES TO SALES FOR LARGE CORPORATIONS, BY INDUSTRY, 1921-39[a]



[a] Data for manufacturing and trade are based on a special tabulation of the National Bureau of Economic Research; those for railroad, telephone, and electric light and power are from Tables A-56, A-57 and A-58 in Data Book.

1930–33, while property expenditures declined over 63 percent. In view of the durable character of most property expenditures this relationship is not surprising.

Among the major manufacturing industries, petroleum and chemical companies had the highest ratios of expenditures to sales. In the chemical industry there has been, however, a tendency for the importance of expenditures relative to sales to decline. The level of the expenditures/sales ratio for petroleum companies has, on the other hand, remained relatively stable. Recent property expenditures of oil companies in part reflect investment decisions of executives to build up reserves in order to cope with the policy of proration by which the production of a given oil well is restricted. In addition, they reflect the response of members of the industry to such technical changes as improved processes for cracking crude petroleum, the development of polymerization techniques for the manufacture of high-test airplane gasoline, and the expansion of the Houdry process of oil refining.

A decrease in the importance of fixed property expenditures relative to sales is also apparent in the textile, and building materials and equipment, industries. This is not surprising in view of the depressed condition in these industries. In the other manufacturing industries, there seems to have been no significant change in the relationship between fixed property expenditures and sales over the two decades between the two World Wars.

The level of the ratio in most trade groups has declined somewhat. Among the trade industries, chain variety stores had the largest, and chain grocery stores the smallest, ratio of fixed property expenditures to sales for the entire period. The high ratio for chain variety stores may have been due to the competitive pressures during the twenties to acquire high-cost, urban sites. The low ratio in the case of grocery stores is undoubtedly the result of the high merchandise turnover of these stores.

In the case of the three utility industries, the level of the ratio of fixed property expenditures to operating revenues was substantially lower in the thirties than in the twenties. For telephone companies, for example, the ratio averaged almost 49 percent in 1921–30 and only about 26 percent in 1931–39. The decline in the ratio in all three industries in 1930–33 was precipitous, the ratio for electric light and power companies, for example, falling from 46 to 7 percent.

THE ACQUISITION OF SUBSIDIARIES

We have already seen that since 1920 large corporations have made substantial expenditures on property. Superimposed upon this internal growth have been acquisitions by these corporations of existing concerns—competitors, suppliers and customers. These acquisitions have been in the form of gradual investments in the equity securities of another enterprise or of taking over at a given point of time the assets and liabilities of such an enterprise, either for cash or by the exchange of securities.

The importance of investments in subsidiaries and affiliates by large corporations was clearly indicated in a report of the Securities and Exchange Commission.[21] Fifty-eight percent of a sample of 1,961 large corporations, registrants with the Commission, had at least one subsidiary in 1937. The smallest registrants (those with total assets of less than $1 million) averaged only 2 active subsidiaries per registrant, but the largest registrants (those with total assets of $500 million) averaged 73 subsidiaries per registrant. In addition, only 45 percent of all registrants with total assets below $10 million reported active subsidiaries but 98 percent of all registrants with total assets over $50 million reported such subsidiaries. It should be noted, of course, that some of these subsidiaries were set up for legal or financial reasons rather than for purposes of control or expansion.

The large manufacturing corporations in our sample also expanded their facilities considerably by the acquisition of subsidiaries and affiliates. Eighty corporations expended $2.5 billion for subsidiaries as contrasted to $12.8 billion for property. These outlays on subsidiaries were highly concentrated in the late twenties and in 1930. This is in accord with Willard Thorp's findings.[22] In Table 6, Thorp's estimates of the number of mergers and acquisitions in manufacturing and mining are compared with the flows of funds through the investment accounts of the 24 large manufacturing corporations. Although Thorp is dealing with numbers of mergers *and* acquisitions and we are dealing with dollar expenditures on investments only (exclusive of mergers), the extreme fluctuations in the two series are similar.

The large volume of expenditures on subsidiaries by large manufacturing corporations in 1923 was mainly due to the acquisition by Bethlehem Steel Corporation of the Lackawanna Steel Company, and by Youngstown Sheet and Tube Company of the Briar

Table 6—NUMBER OF MERGERS AND ACQUISITIONS IN MANUFACTURING AND MINING COMPARED WITH INCREASES IN INVESTMENTS IN SUBSIDIARIES AND AFFILIATES OF A SAMPLE OF LARGE MANUFACTURING CORPORATIONS, 1921–39[a]
(dollar figures in millions)

Year[b]	MERGERS AND ACQUISITIONS IN MANUFACTURING AND MINING		INCREASES IN INVESTMENTS IN SUBSIDIARIES AND AFFILIATES OF MANUFACTURING SAMPLE	
	Number	*As a % of 1929*	*Amount*	*As a % of 1929*
1921 (T)	487	39%	$192	33%
1922	309	25	69	12
1923 (P)	311	25	290	49
1924 (T)	368	30	61	10
1925	554	44	189	32
1926 (P)	856	69	192	33
1927 (T)	870	70	113	19
1928	1,058	85	224	38
1929 (P)	1,245	100	586	100
1930	799	64	291	50
1931	464	37	183	31
1932 (T)	203	16	54	9
1933	120	10	98	17
1934	101	8	53	9
1935	130	10	39	7
1936	126	10	36	6
1937 (P)	124	10	47	8
1938 (T)	110	9	50	9
1939	87	7	95	16
		AVERAGE ANNUAL VOLUME		
1921–39	438	35	151	26
1921–29	673	54	213	36
1930–39	226	18	95	16
'30–33	397	32	157	27
'34–37	120	10	44	8

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[a] Data on the number of mergers and acquisitions are from Willard L. Thorp, *The Structure of Industry*, TNEC Monograph No. 27 (Washington, 1941) p. 233. The total number of mergers and acquisitions equals the number of concerns merged less the number of mergers plus the concerns acquired. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] For peaks and troughs, see Table 5, footnote b.

Hill Steel Company and Steel and Tube Company. However, the acquisition movement did not really get under way until 1925. During subsequent years prosperous business conditions and favorable security markets led to frantic promotional activity to create giant enterprises.[23] The relatively large volume of expenditures in 1930 and 1931 was due both to the carrying out of previously planned acquisitions and to "bargain purchases." In 1932, however, the acquisition movement declined precipitously and remained throughout the thirties at a level far below the twenties.

Large trade corporations had an even greater concentration of the acquisition of existing stores or chains of stores during the late twenties. The peak of these investments in 1928 was largely the result of: (1) Montgomery Ward's formation of the Montgomery Ward Properties Corporation, a subsidiary engaged in acquiring warehouses and retail outlets which it leased to the parent company; and (2) Kroger Grocery's expansion in the Middle West through the acquisition of 16 smaller chains of retail food stores operating over 1,200 outlets. In the following two years Montgomery Ward continued its investment in its Properties Corporation, First National Stores acquired five New England retail food chains (1929) and S. H. Kress acquired the variety stores of the John Franklin Corporations of Texas and New York (1930).

Railroad investments in securities of subsidiaries and affiliates were also substantial in the twenties, particularly during 1923, 1924 and 1929. This period of consolidation began with the return of the railroads to their private owners after the war, and was encouraged by the passage of the Transportation Act of 1920. This Act, with its "recapture clause," induced high-earning, low-capitalized roads to combine with low-earning, high-capitalized roads. The Act stated that the Interstate Commerce Commission was to approve such consolidations provided that competition was preserved as fully as possible, and that the Commission itself could submit plans for railroad consolidation that would be in the public interest.

These investments of operating railroads understate the degree of railway consolidation that took place during the twenties. It was during this period that the railway holding company came into its own. The most outstanding example of the use of this financing device to create a railroad empire was that of the Van Sweringen brothers. With an original investment of $2 million borrowed from banks, the two brothers secured control of a network of railroads spanning the country from east to west and north to south, by establishing a structure of 14 holding companies.

With the coming of the depression and the precipitous decline in earnings, railroad credit as well as the desire to build ever-expanding railroad empires declined. Executives were much more intent on salvaging existing structures than on extending them. During the thirties there was a net liquidation of investments in subsidiaries that amounted to over $500 million.

Comparable annual data on the acquisition of subsidiaries by telephone and electric light and power companies are not available. Because of the corporate structure of these industries any such series of data would not be comparable with those on manufacturing, trade and railroad corporations in any case. The Bell System involves a parent company—the American Telephone and Telegraph Company—subsidiaries, and subsidiaries of subsidiaries. Since 1900 A.T.&T.'s expanding activities have been manifesting themselves in the organization and acquisition of interests in a large number of direct and indirect subsidiaries. It increased its interest in previously acquired subsidiaries, bought up independents, and invested in non-telephone enterprises. These purchases were paid for with cash, and A.T.&T. stocks and bonds.

The major part of the financing was centralized in the parent company. In many cases the financial requirements of subsidiaries were met by loans from A.T.&T. that were later converted into equity securities, thus increasing the interest of the parent in the subsidiary. From December 31, 1920 to December 31, 1935 the investments of A.T.&T. increased $1.5 billion, from $.8 to $2.3 billion.[24] Common stocks in associated Bell companies made up the largest type of investment among the assets of the parent, amounting to $2.1 out of $2.3 billion on December 31, 1935.

On the other hand, the electric light and power industry is concentrated in several controlling groups rather than in a single company. These groups built up numerous giant systems during the twenties. In 1927, five of these systems controlled about one-half of the American electricity output. The form of financing was similar to the Bell System in that the major part of the funds of operating companies was secured from parent holding companies. No comprehensive industry data are available on expenditures for the acquisition of subsidiaries by these large systems. Such expenditures undoubtedly were very large in the twenties but they have subsided since 1930. The passage of the Public Utility Holding Company Act has tended to deconsolidate the industry.

This analysis of the fixed capital outlays of large corporations in selected American industries has shown diverse trends in the demands of these corporations for funds for fixed capital requirements. In the late thirties the fixed property expenditures of many large manufacturing concerns exceeded those of the late twenties. On the other hand, the fixed property expenditures of large trade, railroad, telephone and electric light companies at no time during the thirties attained the level of the twenties. For all the industrial groups studied except manufacturing, fixed property expenditures have tended to decline relative to sales during the past two decades. It is true of all industries that there has been no tendency during the thirties to repeat the feverish acquisition of subsidiaries characteristic of the late twenties.

• 3 •

CURRENT ASSETS

CURRENT ASSETS CONSIST OF raw materials, finished products, temporary credits to customers, secondary reserves (readily marketable securities) and cash holdings. Fixed assets are sometimes referred to as fixed capital, current assets as working capital. Dewing has likened fixed capital to a mill and working capital to grist for the mill, the function of the mill being to transform a steady flow of grist into a product that can be sold for more than enough to pay for the original cost of the grist and for the operation of the mill.[1]

One of the most important factors affecting the volume of current assets required by business is the character or techniques of the industry. Railroads, telephone companies, and electric light and power companies require enormous fixed capital. Their services are created by the slow using up of large fixed property facilities. On the other hand, trade concerns, whose function is also to provide a service, require a completely different structure of assets. Little fixed capital in the form of plant and machinery is required relative to more liquid capital in the form of finished goods inventory and trade receivables. The ratios of current assets to total assets in 1937 were as follows for the five groups: [2]

Trade	63%
Manufacturing	39
Electric light and power	6
Telephones	6
Railroads	4

Within these broad groupings there was, of course, considerable diversity, both among industrial subgroups and among individual corporations. Differences among the individual corporations were small enough, however, to justify analysis by major subgroups.

In view of the relatively insignificant role current assets play in the financial structure of railroad, electric light and power, and telephone companies, most of the analysis which follows will deal with the working capital requirements of large manufacturing and trade corporations.

Working capital needs may reflect cyclical swings or long-run growth in business volume. Seasonal peaks in demand, for example for department store merchandise at Christmas time, necessitate large outlays on current assets during preceding months.[3] Fluctuations in business activity may affect demands for the physical volume of current assets, and fluctuations in commodity prices may affect demands for the dollar volume of current assets over a period of several consecutive years. Finally, an absolute growth or decline in the enterprise, or a technical change in the manner of doing business, may permanently affect requirements for working capital. These capital requirements are financed not only by short-term debt (bank loans and trade payables) but also by funds retained from operations and proceeds from the sale of equities and long-term debt.

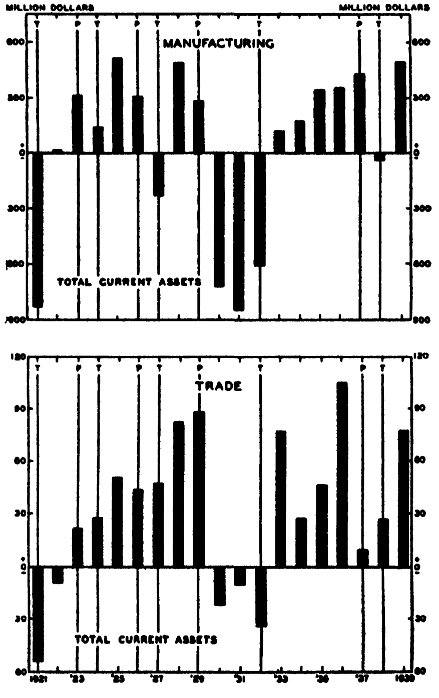
As would be expected, however, most increases in current assets occur during periods of recovery and prosperity. When business is improving and sales forecasts are upward, concerns tend to increase their stocks of raw materials, goods in process and finished goods. In manufacturing, more goods are in process of production. Higher prices add to the financial requirements for working capital. At the same time more and more finished goods are sold and debts of customers pile up. Finally, along with increases in sales and production come increases in wages and other out-of-pocket costs and more cash is needed in the till to keep the enterprise functioning smoothly.

From a cyclical viewpoint these increases during periods of general business expansion mean increased income- and employment-creating expenditures. Current assets may, however, be a source as well as a use of funds. In times of recession and depression such assets are often liquidated to provide funds for other corporate purposes. With decreasing sales, weakening expectations of future sales, and anticipations of a continued decline in the prices of raw materials, enterprises cut down on their raw material commitments and attempt to liquidate existing stocks of goods. Price declines accentuate the decline in the dollar volume of inventory. Customers' debts are collected and the decreased level of current sales produces fewer outstanding receivables. At this lower level of business, concerns operate on smaller volumes of cash. Just as additions to current assets during business expansions add impetus to that expansion, liquidations of such assets during contractions accentuate that contraction.

TOTAL CURRENT ASSETS

On the average, the annual dollar change in current assets of the manufacturing and trade samples was about the same for the two decades covered by our study despite the considerable difference in price level. The average annual expenditures on current assets by the manufacturing sample decreased slightly from $257 million in the period 1923–28 to $231 million in the 1933–38 period. In trade the increase was slight, from $45 million to $48 million.[4] The average level of the wholesale price index as published by the Department of Labor, Bureau of Labor Statistics, was about 99 for the 1923–28 period and about 78 for 1933–38 (1926 = 100). There was a decline, then, in the over-all wholesale price index of about 20 points concurrently with the minor changes in current assets mentioned above.

In years of marked sales expansion, working capital requirements may be exceptionally large. In 1939 the ratio of current assets to fixed capital expenditures for the manufacturing sample was 76 percent, and for trade it was 166 percent. After 1933, working capital expenditures were greater relative to fixed capital expenditures than they were during the expansion of the twenties. This was due in large part to the necessity for building up inventories which had been drastically reduced during the great depression of the early thirties. In addition, large sales increases from the depression lows brought with them increased customer financing.



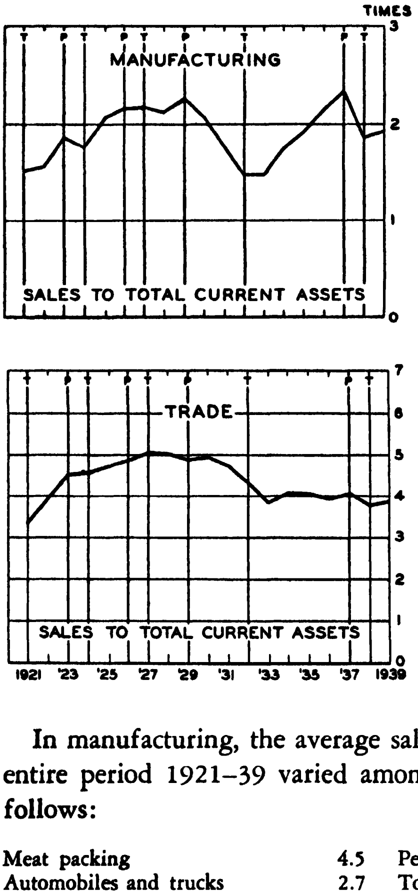
Expenditures on current assets of our samples of manufacturing and trade concerns fluctuated greatly with the business cycle. The manufacturing concerns increased their total current assets in all but six years. Since 1932 there have been steady annual increases (with the exception of 1938), culminating in an increase of nearly $500 million in 1939 which was undoubtedly the result of the outbreak of war in Europe. Other large increases took place in 1925 and 1938, years following minor recessions in general business activity. One of the greatest annual liquidations of total current assets, amounting to $835 million, occurred in 1921, a year in which prices broke sharply, reducing drastically the dollar volume of inventory. The longest period of liquidation occurred in 1930–32, when total current assets decreased by more than $2 billion.[5]

This cyclical pattern was also characteristic of most major manufacturing groups. The concerns in these groups increased current assets during years of recovery and prosperity and reduced them during years of recession and depression. Over the entire period, meat packing, iron and steel, and textile companies reduced, while all other groups increased, their total current assets.

The total trade sample as well as its subgroups showed more consistent and more marked increases in current assets throughout the period. It should be remembered that our sample consists mainly of chain stores which flourished during the twenties and early thirties at the expense of other types of retail distribution outlets. The current assets of chain grocery stores, for example, increased annually even during the depression years of the early thirties, decreasing in only two years, 1934 and 1937.

One method of indicating the relative importance of current assets over time and among industries is to compare them with sales. The primary determinants of the magnitude of the sales/current assets ratio of a given concern are the period of production, selling terms, and liquidity position. Considerable variation is to be noted among industrial groups and over time in the turnover of total current assets.

For manufacturing, there was no trend in the sales/current assets ratio during this period, while for trade its level fell about 20 percent from the last half of the twenties to the last half of the thirties. As would be expected, the ratio varied considerably from year to year, rising in years of increasing business activity and falling in years of decreasing business activity. The peak for manufacturing (over 2.3) was reached in 1937, and the low (slightly under 1.5) in 1932 and 1933. Most of the variation in the ratio



was due to fluctuations in sales. Although, as we have already seen, the dollar volume of current assets exhibits marked cyclical fluctuations, the cyclical fluctuations in sales are even more marked.

The turnover of current assets was much greater for trade corporations than for manufacturing concerns, the average sales of trade being more than 4 times current assets, and the average sales of manufacturing being less than 2 times current assets. The different character of the two types of business would seem to account for this difference.

In manufacturing, the average sales/current assets ratio for the entire period 1921–39 varied among major industrial groups as follows:

Meat packing	4.5	Petroleum	1.8
Automobiles and trucks	2.7	Tobacco	1.6
Food other than meat packing	2.0	Textiles	1.6
Rubber	1.8	Iron and steel	1.5
Building materials and equipment	1.8	Chemicals	1.4
		Machinery	1.1

In trade, too, the average sales/current assets ratio varied considerably among major groups of companies:

Chain grocery stores	6.6	Department stores	2.9
Chain variety stores	4.4	Mail-order houses	2.8
		Miscellaneous chain stores	2.6

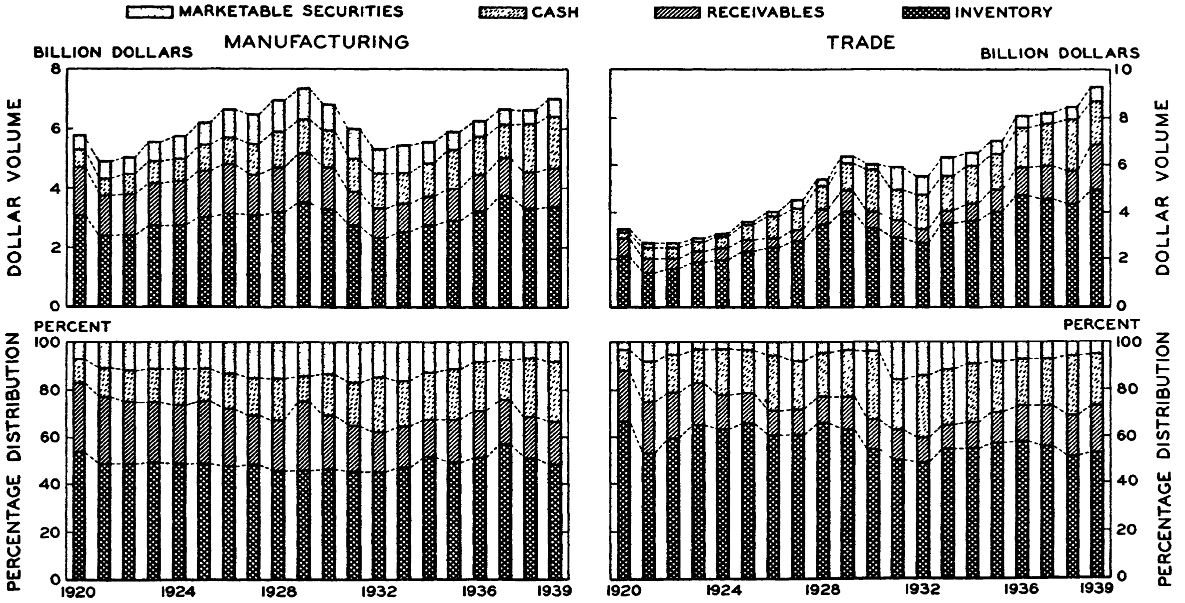
COMPOSITION OF CURRENT ASSETS

Chart 4 shows annual changes in the current assets of our samples of manufacturing and trade corporations.

Among both manufacturing and trade concerns, inventory is the

CHART 4

DOLLAR VOLUME AND PERCENTAGE DISTRIBUTION OF TOTAL CURRENT ASSETS OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1920–39[a]



[a] Based on Tables A-2, A-14, A-38 and A-44 in Data Book.

most important element of current assets. In trade, its relative importance decreased somewhat over the two-decade span, while remaining relatively steady in manufacturing. The most striking change in both groups has been the increase in liquid assets (cash and marketable securities), both absolutely and relative to other current assets. The course of receivables as a percent of total current assets has been downward in manufacturing, but U-shaped in trade. Since 1926, with the exception of the depression dip from 1930–33, the ratio in trade has increased.

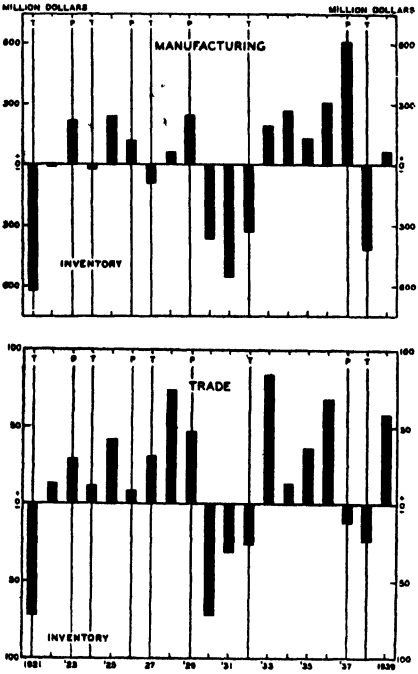
Inventory

As we have seen, inventory is the major component of the current assets of large manufacturing and trade corporations. Nevertheless, there are marked differences in inventory holdings, apparently growing out of industrial differences.[6] Some business concerns (for example, tobacco manufacturers) carry large raw material reserves as a result of irregular sources of supply. Other concerns, with pronounced fluctuations in the demand for their products, accumulate large stocks of finished goods during slack periods. Still other companies pile up inventory in anticipation of price rises.

The importance of inventory in financial structure can be illustrated by comparing it with "all other loans" of member banks of the Federal Reserve System. In 1937, the inventory of all corporations submitting balance sheets to the Bureau of Internal Revenue amounted to $18.5 billion, almost three times "all other loans" of member banks.[7] Moreover, the accumulation of inventory is in some years an important absorber of the nation's savings. In 1937 the net increase in business inventory of $3.3 billion amounted to almost 20 percent of gross capital formation. In some years, of course, inventory was reduced, thus providing funds for other business purposes. In 1932, for example, business inventory decreased $2.4 billion while gross capital formation totaled only $3.1 billion.[8]

The inventory fluctuations follow the fluctuations in total current assets. The drastic liquidations of inventory after the crisis of 1920, the crash of 1929 and the sharp decline of 1937–38 are strikingly apparent in the charts for both industrial categories. The manufacturing sample exhibited declines in inventory also in the minor recession years, 1924 and 1927.

These annual changes in inventory are from data adjusted for reported inventory revaluations.[9] Such revaluations—in the main writedowns—occurred most frequently in industries in which raw material costs were important (for example, rubber and meat packing). As indicated in Table 7, the most striking of these writedowns occurred in 1921, 1930–32, 1934, and 1937, years in which raw material prices were comparatively low.



Changes in the dollar volume of inventory are, of course, greatly affected by changes in prices of materials making up the inventory. In Chart 5 the percentage changes in the wholesale price index of commodities other than farm products are plotted alongside of the percentage changes in the inventory of our combined sample of 111 large manufacturing and trade corporations. The annual changes in the two series are quite similar during most of the period but diverge sharply during the inventory expansions of 1923, 1926, 1929, and 1937, and slightly during the subsequent contractions. The 21 per cent decrease in the dollar volume of inventory in 1921 can more than be explained by a 25 percent decrease in prices.[10] The increases in the dollar volume of inventory in 1936 and 1937 represented in the main genuine increases in holdings of physical inventory. Because of the difficulty of securing price series strictly comparable with our inventory data, no attempt is made in this study to arrive at any quantitative estimate of the importance of prices in changes in the dollar volume of inventory.[11]

Among the major manufacturing industries, meat packing, machinery, petroleum, and textile companies reduced inventory. Textile companies reduced inventory in 11 of the 19 years. The large tobacco companies, on the other hand, expanded their inventory holdings in 14 out of the 19 years, increasing them $215 million over the period. In trade, all the groups except department stores increased their inventory holdings. Chain variety stores increased their inventory in all but 4 years.

Table 7—CHANGES IN INVENTORY AND INVENTORY REVALUATIONS OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921–39[a] (*in millions*)

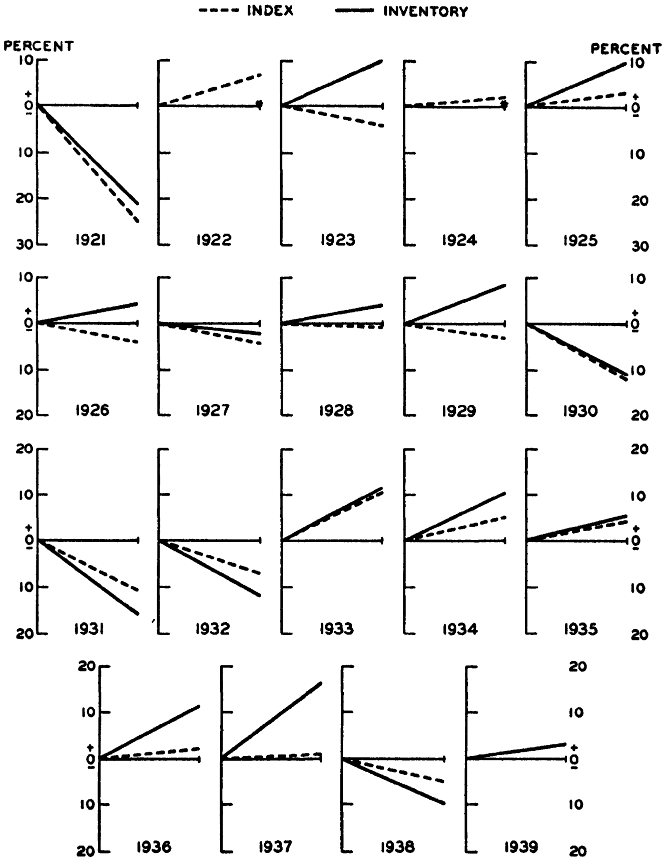
	MANUFACTURING			TRADE		
Year[b]	*Changes in Inventory after Revaluations (Book Value)*	*Inventory Revaluations*[c]	*Changes in Inventory before Revaluations*	*Changes in Inventory after Revaluations (Book Value)*	*Inventory Revaluations*[c]	*Changes in Inventory before Revaluations*
1921 (T)	$−732	$−111	$−621	$−78	$−5	$−73
1922	−30	−19	−11	13	0	13
1923 (P)	201	−18	219	29	0	29
1924 (T)	−31	−11	−20	12	0	12
1925	231	−12	243	42	0	42
1926 (P)	92	−28	120	8	0	8
1927 (T)	−107	−18	−89	31	0	31
1928	48	−18	66	73	[d]	73
1929 (P)	288	43	245	47	0	47
1930	−444	−79	−365	−72	0	−72
1931	—623	−69	−554	−36	−5	−31
1932 (T)	−366	−38	−328	−27	−1	−26
1933	193	−1	194	83	0	83
1934	229	−40	269	13	0	13
1935	120	−13	133	37	0	37
1936	298	−5	303	68	0	68
1937 (P)	564	−38	602	−11	[d]	−11
1938 (T)	−415	3	−418	−23	0	−23
1939	64	−3	67	58	[d]	58

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.
[b] For peaks and troughs, see Table 5, footnote b.
[c] Writedowns are negative; writeups are positive.
[d] Less than $500,000.

Study of the changing importance of inventory in corporate financial structure over time indicates that the decline of the commercial loan during the past two decades, at least in the case of large manufacturing and trade corporations, has been caused by other factors than a decrease in volume of inventory requirements

CHART 5

PERCENTAGE CHANGES IN THE WHOLESALE PRICE INDEX AND IN INVENTORY OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921-39[a]

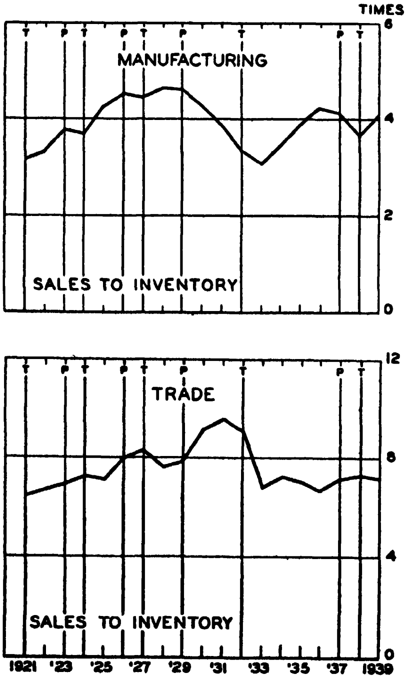


*Inventory less than .5 percent.

[a] The wholesale price index, compiled by the Bureau of Labor Statistics for commodities other than farm products, is the December average. Inventory data are from a special tabulation of the National Bureau of Economic Research.

relative to sales. Although new methods of transportation and improved techniques of industrial organization have been introduced since 1920, there is no clear tendency for the level of the sales/inventory ratio to change materially during the two decades.[12] Counteracting tendencies may have included a shift away from hand-to-mouth buying—this has certainly been the case in tobacco—and the increasing importance in the economy of durable goods, with longer periods of production requiring a larger volume of goods tied up in the manufacturing process.

The sales of our sample of manufacturing concerns averaged almost 4 times year-end inventory for the period. The inventory turnover ratio averaged 4.0 during the twenties, 3.6 in 1930–33, and 3.9 in 1934–39. It ranged from a low of 3.1 in 1933 to a high of over 4.6 in 1928. The inventory turnover ratio for trade for the period as a whole, 7.6, was considerably larger than for manufacturing. This finding is similar to that concerning the relative magnitudes of the sales/total current assets ratio in manufacturing and trade discussed previously. It is also worthy of note that the sales/inventory ratio was in general highest for trade in contraction years, for manufacturing in expansion years. In trade inventory fluctuates more violently than sales, while in manufacturing sales respond more promptly to cyclical changes.



Significant differences in the sales/inventory ratio reflect the length of the period of production, the seasonality of production, the degree of industrial integration and other complex influences. The list of ratios below illustrates how striking these differences may be:

Meat packing	8.3
Food other than meat packing	6.4
Automobiles and trucks	6.2
Chemicals	4.4
Building materials and equipment	4.0
Petroleum	3.7
Rubber	3.5
Iron and steel	3.0
Machinery	2.8
Textiles	2.7
Tobacco	2.2

Two consumer non-durable goods industries, meat packing and other food, had the highest ratios, reflecting in all probability stability of consumption. The surprisingly high turnover for automobile companies indicates the effectiveness of assembly-line, mass-production techniques in economizing inventory. The low ratio for tobacco companies illustrates another important determinant of the volume of financing required for carrying inventory, the availability of suitable raw materials. Large cigarette companies buy up choice cuts of tobacco at harvesting time to ensure adequate supplies for the remainder of the year; in addition, they hold sizable stocks for drying and aging.

In trade, the variation in the sales/inventory ratio among major groups was as marked as it was in manufacturing:

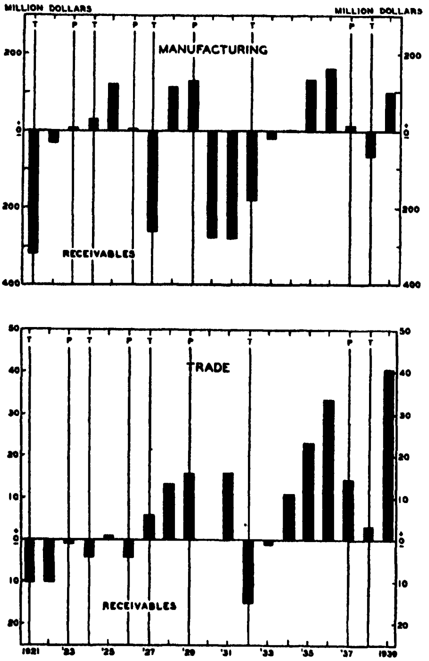
Chain grocery stores	12.4
Chain variety stores	6.8
Department stores	6.6
Miscellaneous chain stores	6.1
Mail-order houses	4.9

The inventory turnover of department stores has increased somewhat during the past two decades, the average annual ratio for 1937–39 being more than 20 percent greater than for 1923–25. For chain variety stores, on the other hand, the sales/inventory ratio has been lower during the thirties than during the twenties.

Receivables

Business concerns also require funds to extend credit to customers, both to other business concerns and to individuals. The volume of such credit depends upon the habitual practices of the industry and the credit policy of the individual concern as well as upon the volume of sales. Early in their history automobile manufacturers began to economize on their current capital requirements by forcing dealers to pay for automobiles upon delivery, and thus shifting the financial burden of carrying these cars from manufacturer to dealer. The prevalence of consumer instalment selling in this industry has shifted the burden one step further, from the dealer to the finance company. Certain machinery companies, on the other hand, extend relatively long-term credit to other business concerns for the purchase of durable, expensive industrial equipment. Liberal credit terms have always been characteristic of the textile industry.

The manufacturing concerns in our sample reduced their receivables $614 million during 1921–39 while the trade corporations increased them $132 million. This disparity in behavior may in part be due to the growth of consumer instalment selling, bringing with it the rise of the finance company. Finance agencies relieved the manufacturer in some industries (especially automobile manufacturers) of the burden of carrying their own receivables. Trade concerns which made a practice of carrying their own receivables experienced a rise in volume in relation to sales due to lower down payments and longer credit terms. According to the Department of Commerce, one-third of all retail sales in 1938 were made on credit.[13] Of the 1938 retail sales reported to the Department of Commerce by 224 department stores, 47 percent were cash sales; 44 percent, ordinary charge account sales; and 9 percent, instalment sales.[14] For a small number of New England department stores instalment sales increased from 5 percent of total sales in 1925 to 10 per cent in 1939.[15]



The relative importance of customer financing among industries and over time can also be indicated by a study of the average collection period.[16] Department of Commerce reports indicate that the payment of one dollar out of every five dollars of retail sales is postponed on the average more than 60 days. Among large manufacturing concerns receivables are collected on the average every 41 days, among large trade concerns, every 12 days. The average collection period for manufacturing showed a steady decline throughout the two decades. For trade, it declined to 1927 but has increased considerably since that date.

Among major groups of manufacturing and trade companies the average collection period varies greatly. In manufacturing this variation over the 19-year period was as follows:

	Days
Automobiles and trucks	19
Tobacco	20
Food other than meat packing	22
Meat packing	27
Iron and steel	37
Chemicals	45
Building materials and equipment	49
Petroleum	51
Rubber	59
Textiles	61
Machinery	105

All groups except chemicals, tobacco, and rubber reduced receivables over the entire period. The great reduction in receivables of large meat packers, $274 million, probably indicates a major change in credit policy. Petroleum, and iron and steel, companies also reduced receivables considerably. Increased vertical integration was partly responsible for this decrease. In all but two industries (building materials and equipment, and iron and steel) the average collection period has decreased. In large chemical and petroleum companies, it fell about 50 percent.

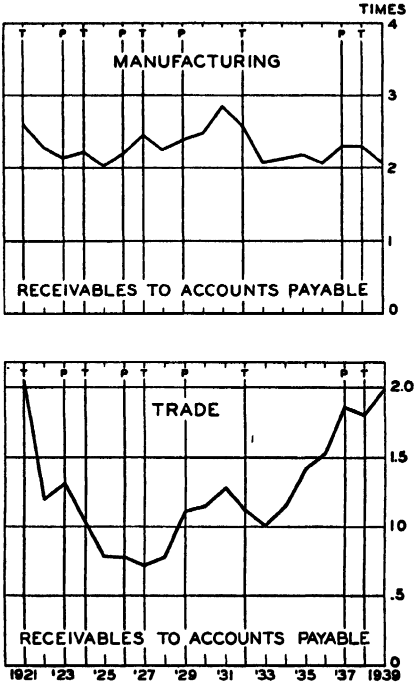
In trade, the relative importance of cash as contrasted to credit sales in chain variety and chain grocery stores is clearly indicated by the following table of the average collection period of major trade groups:

	Days
Chain variety stores	1
Chain grocery stores	2
Mail-order houses	35
Miscellaneous chain stores	52
Department stores	58

Because of the increase in time-sales financing by department stores their average collection period has increased quite consistently throughout this period. Since 1926, the year in which Sears, Roebuck & Co. established its first retail store, the average collection period for mail-order houses has also risen greatly.

As was to be expected, during most of the two decades (except 1925–28 in the case of trade) both of these two samples of large, profitable, long-lived corporations were net creditors on trade accounts to the rest of the community. For the manufacturing sample, notes and accounts receivable were more than double accounts payable in every single year throughout the period, with the ratio remaining at about the same level during these years.

Among major manufacturing groups, the highest ratio was in machinery with receivables more than 8 times payables, while the lowest aggregate ratio, 1, was in automobiles. The ratio for automobile and rubber companies has decreased, while the ratio for tobacco companies has increased. For other major manufacturing groups it has remained at about the same level. In trade, the receivables/payables ratio has been less than in manufacturing because of the insignificance of credit sales in chain variety and chain grocery stores. For both department stores and mail-order houses receivables have increased relative to payables as a result of the growth of instalment selling.



In 1937 the receivables/payables ratios for both samples of large corporations were considerably larger than the ratios for all corporations.[17] Although the corporate universe as a whole is the net trade creditor of unincorporated business and individual consumers, large, profitable, long-lived manufacturing and trade corporations are net trade creditors of the rest of the corporate universe as well as of unincorporated business and individuals. There has been no major change, however, in the relative trade creditor status of these large concerns during the past two decades.

Cash and Marketable Securities

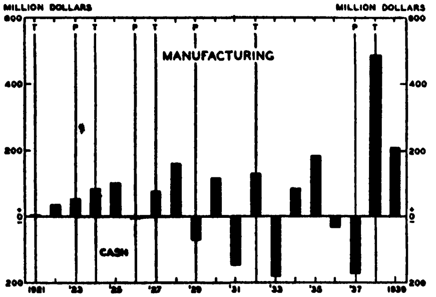
The final element of working capital required by business concerns is a fund of liquid resources with which to meet day-to-day expenses. There must be money to meet the weekly payroll and to pay trade accounts which come due. Coupled with this need for a minimum amount of cash is the precautionary business policy of keeping a sizable proportion of assets in a liquid form.

Cash and marketable securities constitute a more important element of the financial structure of large trade than of large manufacturing concerns. For our combined sample of trade corporations the cash plus marketable securities/total assets ratio averaged 16 percent, while for manufacturing it averaged 11 percent. The large cash plus marketable securities/total assets ratios in trade can be explained at least in part by the need for sizable cash balances to facilitate the millions of small cash transactions made by retail chain stores daily. Among major trade groups, this liquidity ratio varied from a high of 32 percent for chain grocery stores to a low of 5 percent for department stores. In manufacturing there was also considerable diversity. Among major industrial groups, the average cash plus marketable securities/total assets ratio for the period 1921–39 varied as follows:

Food other than meat packing	24.1%
Automobiles and trucks	18.5
Machinery	17.4
Chemicals	16.8
Tobacco	12.7
Building materials and equipment	12.1
Iron and steel	9.1
Rubber	9.0
Petroleum	8.6
Meat packing	7.0
Textiles	6.5

The industries with high liquidity ratios have been on the average more profitable than those with low ratios, suggesting that profitability is more important than industrial character in determining the relationship of this item to total assets. Actually, however, cash holdings of large corporations exhibit more haphazard, random changes than any other business asset, reflecting various decisions, such as a decision to expand plant, to purchase inventory, or to retire debt.

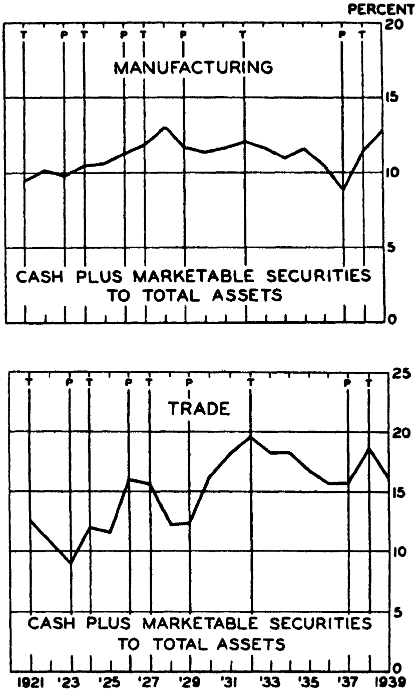
The cash holdings of our sample of large manufacturing corporations decreased in six years and increased in all other years. The decreases in 1929, 1936, and 1937 occurred concurrently with large inventory purchases during those years. Although all the major manufacturing groups except textiles increased their holdings of cash over the past two decades, the annual changes throughout the period among industries and even among individual companies in single industries were very diverse in absolute dollar amount and in direction of change. Large food and chemical companies were the most consistent accumulators, and textile companies the most consistent liquidators, of cash during these years. All the major trade groups increased their cash holdings over the entire period but the amount and direction of the annual changes among the groups were widely scattered.



The liquidity position of our manufacturing sample as a whole, as measured by the proportion of total assets held in the form of cash or cash equivalent, exhibited no marked trend during the past two decades, averaging 11.0 percent in the twenties and 11.3 percent in the thirties. If we omit the United States Steel Corporation from our sample, however, we find that the ratio increased from 11 to 12 percent. Moreover, if we examine this liquidity ratio by individual company, we find that more than two-thirds of the manufacturing corporations increased their average ratio of cash plus marketable securities to total assets from 1920–21 to 1937–38.

In trade the liquidity ratio has also increased considerably during the past twenty years, averaging 12 percent in the twenties and 17 percent in the thirties. In both manufacturing and trade groups there was a consistent increase in liquidity position during the first part of the twenties. In manufacturing, this increase continued throughout the latter half of the decade, partly because of the large call loans of big business during the late twenties. Large corporations took advantage of the high rate of interest on such loans by investing much of their idle cash in them. Some concerns even sold securities in the bull market for the purpose of obtaining funds to invest on call.

During the first half of the thirties the ratio of cash plus marketable securities to total assets was at a higher level for both groups. During these years money rates were low and corporate outlays small. With the increase in business in 1936 and 1937, liquid assets were drawn down again to finance inventory accretions. Finally, 1938 and 1939 again saw cash balances at quite a high level.



There was also considerable diversity in the behavior of the cash plus marketable securities/total assets ratio among major manufacturing groups during expansions and contractions of general business activity. In the case of industries in which inventory makes up a sizable proportion of total assets (meat packing, other food, rubber, textiles, and tobacco) this liquidity ratio increased during recession and depression years and decreased during recovery and prosperity years. This was to be expected in industries utilizing raw materials the prices of which fluctuate greatly during business cycles. During periods of declining business activity the dollar volume of inventory and total assets of these industries decline substantially due to reduced sales and lower prices, whereupon cash and marketable securities increase as a percentage of total assets.

The case of the iron and steel industry during the 1928–33 cycle in general business activity, on the other hand, is an example of just the opposite type of cyclical change in the proportion of assets held in liquid form. In this industry the cash plus marketable securities/total assets ratio dropped from 13 percent in 1928 to 6 percent in 1933. This decrease was general throughout the industry and was not due to one or two large companies. Many iron and steel companies during the late twenties kept accruals to their depreciation, insurance, and pension reserves invested in readily marketable securities, a type of "secondary reserve" which they liquidated to finance operating losses and to retire debt.[18] It is clear that there may, indeed, be "financial behavior leadership" as well as "price leadership" in industries dominated by a few large corporations.[19]

· 4 ·

SHORT-TERM FINANCING

WHEN A CONCERN DECIDES to expand its plant, increase its inventory, or extend additional credit to customers, it may borrow from a bank or finance company, secure credit from suppliers, retain more of its cash sales dollars within the enterprise, or sell stocks and bonds. Thus short-term borrowings, funds retained from operations, and security sales are the major sources of funds utilized by business enterprises to finance their fixed and working capital requirements during periods of increasing business activity.

The specific source of funds utilized may or may not be a matter of choice. In some growing profitable industries (for example, the automobile industry), the major part of capital expenditures has been financed out of funds retained from operations. Our sample of eight large automobile and truck companies expended $1,790 million on fixed capital and net additions to working capital and had available funds from operations of $1,876 million, over the period 1921–39. Long-term securities and short-term notes payable were retired net, while the "value of product" of the industry increased from $1,671 million in 1921 to $3,096 million in 1937. In other industries (for example, the telephone industry), it has been easy for concerns to sell securities publicly.[1] Still other industries (for example, meat packing) have relied on commercial banks for substantial amounts of funds.

TOTAL SHORT-TERM FINANCING [2]

The relative importance of short-term indebtedness in the financial structure of a business enterprise depends a great deal on its industrial character. In 1937 the ratio of current liabilities to total assets [3] varied as follows among broad industrial groupings: [4]

Trade	34%
Manufacturing	17
Railroads	7
Electric light and power	4
Telephones	4

This variation with industry is also to be found among major subgroups and among individual corporations. The variation among companies within industries is often as great or greater than among industrial groups. This was not true of the current assets/total assets ratio. The method of financing utilized by a given business concern is much more within its discretion than is the character of its assets structure, which is more largely determined by technological factors.

The variation with size of concern is an inverse one for both manufacturing and trade. In 1937, the ratio of current liabilities to total assets for all corporate manufacturing was 17 percent, while in the large manufacturing sample it was only 9 percent. Explanations of these variations will become apparent as we discuss the components of total current liabilities.

Structurally, large current liabilities/total assets ratios are usually associated with large current assets/total assets ratios but are characteristically smaller, as is shown below:

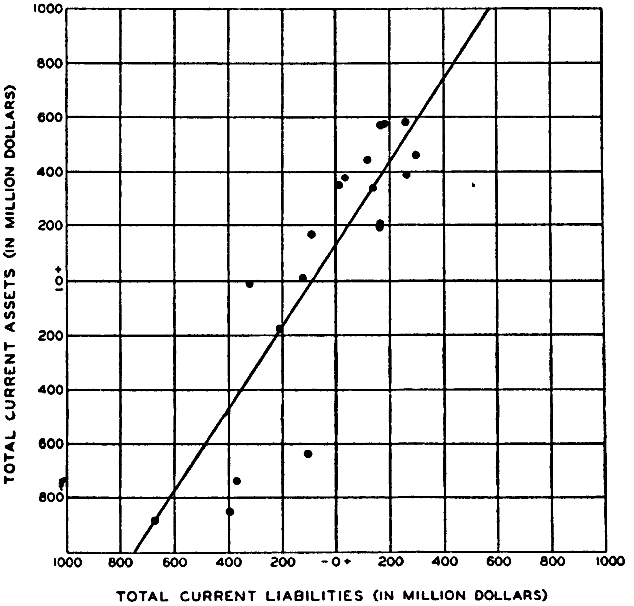
	Current Assets	*Current Liabilities*
Trade	63%	34%
Manufacturing	39	17
Electric light and power	6	4
Telephones	6	4
Railroads	4	7

Changes in current debt are also related to changes in current assets, as is shown in Chart 6. In this scatter diagram the annual changes in current assets of our combined sample of large manufacturing and trade concerns are plotted along with the annual changes in their current liabilities. Several interesting points concerning this relationship between changes in current assets and current liabilities can be noted. First, current liabilities increase and decrease with current assets. Second, the dollar volume of the annual changes in current debt is less than in current assets. Third, current debt tends to show larger changes in connection with decreases than in connection with increases in current assets. When we analyze this relationship between current assets and current debt by narrower industrial groups, however, it is not so clear. Apparently when we deal with smaller aggregates of companies, individual differences in financing are highlighted, although such differences cancel out when the sample is enlarged.

Over the two decades as a whole, the large manufacturing cor-

CHART 6

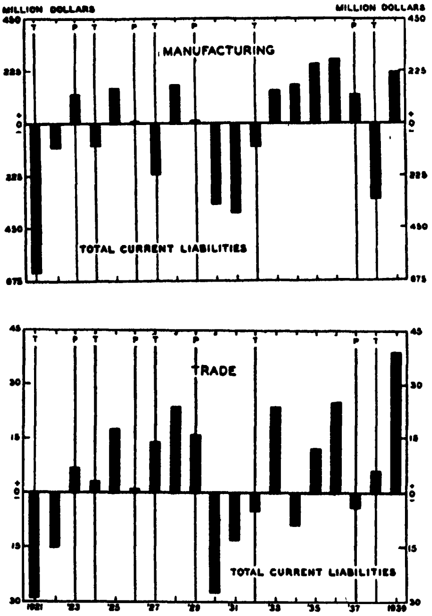
RELATIONSHIP BETWEEN ANNUAL CHANGES IN TOTAL CURRENT ASSETS AND TOTAL CURRENT LIABILITIES OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921-39°



°Based on Tables A-26 and A-50 in Data Book

porations in our sample reduced short-term borrowings both absolutely and relative to alternative sources of funds. During this period these corporations reduced their current liabilities $615 million while expending $719 million on net additions to working capital; they spent more than $15 billion on fixed capital, retained more than $14 billion from operations and obtained over $2 billion new funds from security sales. In other words, these concerns obtained sufficient funds from operations and security sales to retire current indebtedness as well as to finance necessary fixed and working capital requirements.

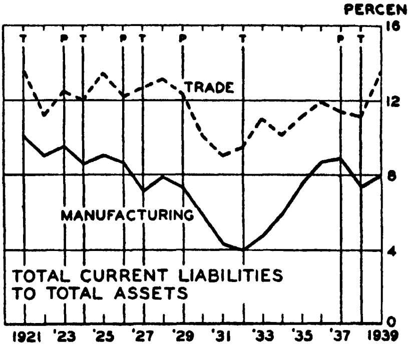
All of this reduction in current debt occurred during depression years. Since 1933, with the exception of 1938, the current debt of these companies has increased consistently. Among the major manufacturing groups all industries except automobiles, chemicals, and tobacco reduced their current debt. Although annual increases in current liabilities were more numerous than annual decreases, such increases were smaller, resulting in the cumulative reduction of current debt in most industries. Textiles had the greatest proportionate decrease in current liabilities, 39 percent, but this was less than the reduction in total liabilities, 44 percent.



On the other hand, the trade concerns in our sample had an aggregate increase in current indebtedness of $88 million during this period. This was small, however, compared to their expenditures of $598 million on net additions to working capital. The annual changes in short-term debt of trading concerns fluctuated in a manner broadly similar to those of manufacturing companies, increasing in years of recovery and prosperity and decreasing in years of recession and depression. Among the major trade groups there was a much more consistent tendency for short-term debt to increase over the period as a whole than in manufacturing. All groups except department stores, which exhibited no significant change in current liabilities, increased their short-term indebtedness.

Although manufacturing corporations decreased the volume of funds secured from short-term sources relative to alternative sources from 1921 to 1932, they increased this volume from 1932 to 1939. The text chart shows the relationship between the current liabilities and total assets of large manufacturing and trade corporations annually. In trade, the level of the ratio was fairly constant up to 1929, after which it dropped precipitously until 1932, since which year it has increased irregularly.

The current liabilities/total assets ratio among most of the major manufacturing groups also tended to decrease in the early thirties and then to increase gradually again. In only one manufacturing industry, petroleum, has the average ratio during recent years been below that of the twenties. For all of the major trade groups there was a decrease in the current liabilities/total assets ratio during the depression of the thirties, but by 1939 the ratio had increased again to the level of the first half of the twenties.



COMPOSITION OF SHORT-TERM DEBT

The type of business financing we have been discussing comes from three main sources: (1) commercial banks, (2) mercantile creditors, and (3) miscellaneous sources, represented chiefly by accrued expenses. The relative volume of financing secured from these three groups is roughly indicated in business financial statements by the volume of notes payable, accounts payable, and various accruals recorded on year-end balance sheets. The dollar volume and percentage distribution of the three components of total current liabilities for our samples of large manufacturing and trade corporations are presented annually in Chart 7.

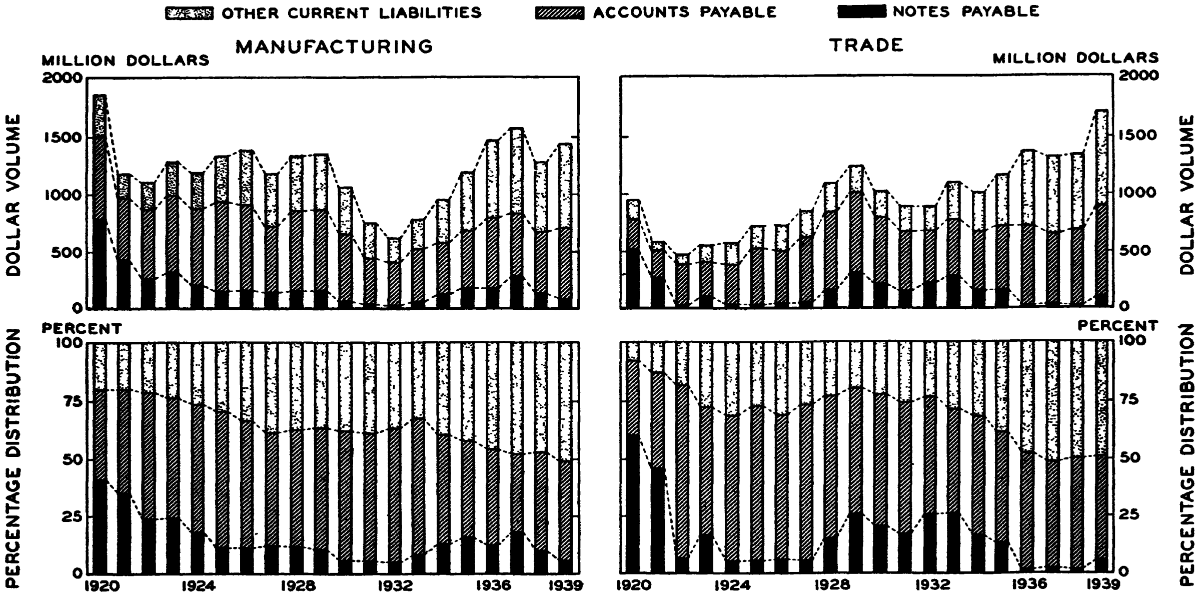
Three striking facts can be noted. In the first place, the notes payable of the manufacturing sample have declined both in dollar amount and relative to accounts payable and other current liabilities. Although they increased in importance after the depression of the thirties, they fell off again in 1938, and in 1939 they were only slightly larger than their depression lows. In trade, the behavior of notes payable was significantly different, the level remaining quite low during the expansion periods of the middle twenties and the late thirties. Second, there has been little change in the importance of accounts payable relative to the other two components of current liabilities in both major industrial categories. The dollar volume of accounts payable just about tripled in trade from 1920 to 1939, while in manufacturing it showed little change. Finally, other current liabilities have been a consistently increasing element of current debt in both groups since 1920.

Notes Payable

Notes payable [5] are fairly insignificant in the financial structure of big business; even in 1937 they were less than 2 percent of the total

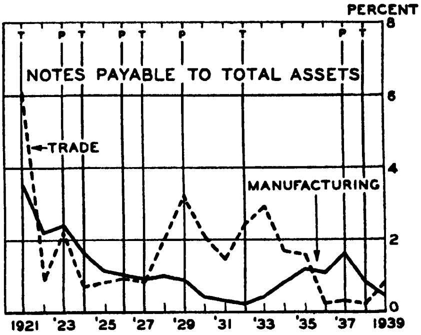
CHART 7

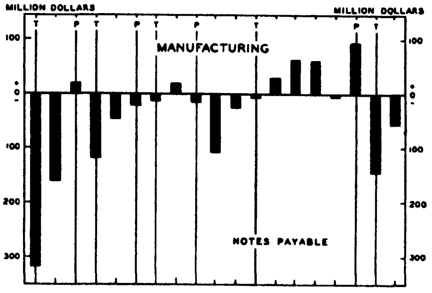
DOLLAR VOLUME AND PERCENTAGE DISTRIBUTION OF TOTAL CURRENT LIABILITIES OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1920-39[a]

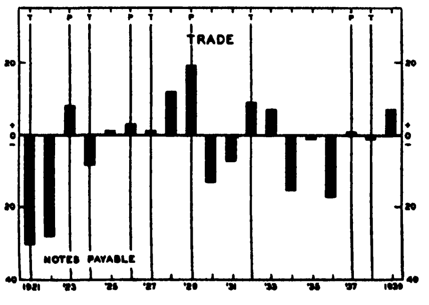


[a] Based on Tables A-2, A-14, A-38 and A-44 in Data Book.

assets of large manufacturing companies. Indeed, when we consider notes payable in comparison with cash holdings of big business we find cash holdings have been consistently greater than bank loans: in 1932 they were over 35 times as great. Only two groups of large corporations (meat packing and textiles) owed banks on the average more than they had on deposit during the past two decades. Large chemical companies and chain variety stores had bank deposits almost 90 times as great as their debt to banks. Over the period studied the manufacturing corporations in our sample reduced notes payable by $751 million and the large trade corporations by $52 million. Most of this decrease occurred in five years. There was an expansion of bank borrowing by big business in the middle thirties, the notes payable of our manufacturing sample soaring from $35 million in 1932 to $285 million in 1937.







Bank loans appear to serve a function of convenience rather than of necessity for large, profitable, long-lived corporations. Generally speaking, when these concerns borrow from banks, they do so either because they consider it cheaper to obtain funds from banks than from other external sources, or because they desire to maintain close banking connections to facilitate possible future borrowings. This conclusion should be understood to apply to banks as sources of longer than seasonal credit to business enterprises.

Unfortunately published data on bank loans are seldom available for intervals of less than a year. By restricting our analysis to year-end data, the importance of bank financing is underestimated for some industries (for example, rubber) whose balance sheets are published at a time of seasonal inactivity.[6] These data are also restricted to the current indebtedness of big business to banks. Banks have been financing large corporations with intermediate-term credit through term or capital loans since 1934. At the end of 1939, the bank term loans of the manufacturing concerns in our sample totaled $85 million while their current notes payable amounted to $88 million. Outstanding bank term loans as a percent of outstanding current notes payable of these concerns varied as follows for 1935–39:

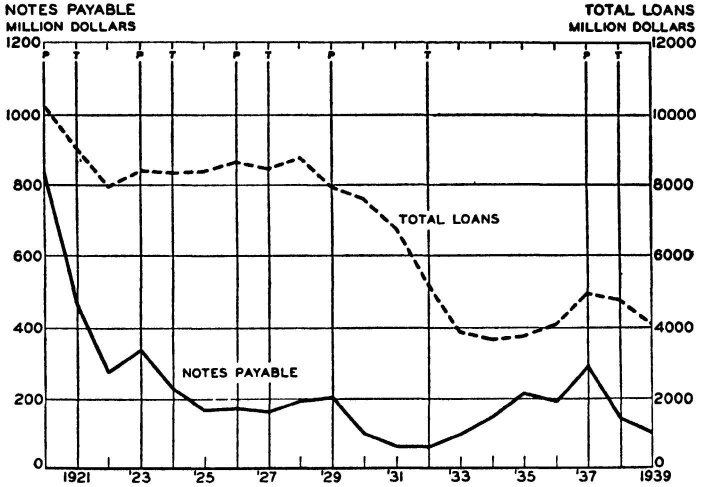
	Bank Term Loans (millions)	*Notes Payable* (millions)	*Term Loans as a Percent of Notes Payable*
1935	$100	$194	52%
1936	74	190	39
1937	38	285	13
1938	36	143	25
1939	85	88	97

Looking more closely at the behavior of notes payable during the past two decades, we see that in large manufacturing concerns they decreased from 42 percent of current liabilities in 1920 to 6 percent in 1939. Trade showed an even greater decline, from 61 to 5 percent. In Chart 8 this decline in the notes payable of manufacturing and trade corporations is compared with that in "total loans commercial in form" of all national banks.[7] This chart shows that changes in the bank loans of big corporations do not determine the course of all commercial loans of national banks. The borrowings of small and medium-sized corporations, partnerships, and individuals (including farmers and brokers) are very large.

Both curves fell sharply in 1921 and 1922 when large meat packers, rubber companies, automobile companies, and mail-order houses were liquidating loans. At this time the two largest mail-order houses in the country managed as a result of substantial inventory liquidations to reduce their bank debt by over $50 million. During the rest of the twenties, although total commercial loans increased slightly, large manufacturing and trade corporations were using profits and the proceeds from security sales to retire notes payable. By 1929, these large concerns had few bank loans to liquidate; other business concerns, on the other hand, had been

CHART 8

TOTAL COMMERCIAL LOANS OF ALL NATIONAL BANKS AND NOTES PAYABLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1920-39[a]



[a] Total commercial loans are as of June 30. See Pearson Hunt, "Portfolio Policies of Commercial Banks in the United States," 1920-39 (Bureau of Business Research, Harvard University, 1940) pp. 50-52 Notes payable are from Tables A-2 and A-38 in Data Book

borrowing during the late twenties, and their liquidation of current debt in the early thirties sent the curve of total commercial loans into a downward plunge.

If we consider the major groups within the manufacturing and trade sample, we find general agreement in the large picture but variation in details. Every one of the groups except miscellaneous chain stores decreased notes payable over the period 1921–39. Considerable difference appears, however, when we compare bank loans to total assets. The average notes payable/total assets ratio varied among the manufacturing groups as follows:

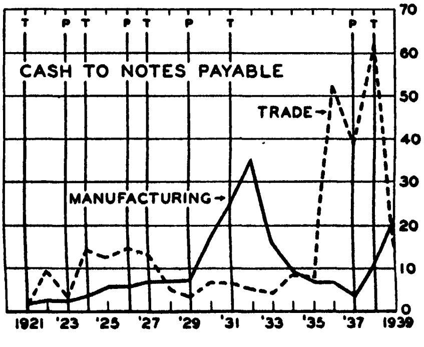
Textiles	8.4%
Meat packing	6.1
Rubber	3.6
Tobacco	1.9
Petroleum	.7
Food other than meat packing	.6
Machinery	.6
Automobiles and trucks	.4
Building materials and equipment	.3
Iron and steel	.2
Chemicals	.1

The four industries on the top of the list, textiles, meat packing, rubber, and tobacco, are all industries in which inventory is an important part of total assets. The inventory loans of such industries are of two types. One is a good example of the classical, short-term, self-liquidating commercial loan. A meat packer, for example, borrows at the bank to pay for livestock, supplies, labor, and other costs. When his meat and by-products have been sold, he has the money to pay off his bank loan. The second type is, however, more than seasonal in character. When business expands or raw material prices rise, companies in these industries borrow to carry a larger dollar volume of inventory. These borrowings may last until business declines or prices fall.

A similar variation is to be found among the trade groups. The notes payable/total assets ratio for the 19-year period as a whole varied as follows:

Miscellaneous chain stores	5.6%
Mail-order houses	3.2
Department stores	3.1
Chain grocery stores	.6
Chain variety stores	.1

The variation in the ratio during the past two decades among major groups in manufacturing and trade is less marked. In only two of the manufacturing industries (building materials and equipment, and petroleum) was the level of the ratio during the second decade higher than during the first decade. In the case of two industries (automobiles and trucks, and chemicals) the ratio during the thirties has been only a fraction of that during the twenties. In trade, the notes payable of mail-order houses averaged slightly higher during the thirties than during the twenties. On the other hand, the average notes payable/total assets ratio of chain grocery stores during the thirties was less than one-seventh that during the twenties.



Since most cash is held in the form of bank deposits and since most notes payable are owed to banks, the ratio of cash holdings to notes payable gives a rough indication of the creditor-debtor relationship between banks and big business. In the text chart this ratio for our sample of 84 large manufacturing corporations is presented annually.

Cash holdings of the manufacturing sample increased consistently from a low of 1.4 times notes payable in 1921 to a high of 35.1 in 1932. The annual average of the ratio for 1937–39, 11.7, was over five times the 1921–23 average of 2.0.[8] The variation of the cash/notes payable ratio among major industrial classifications was very great. In manufacturing, the ratio for the two-decade span varied as follows:

Chemicals	86.8
Iron and steel	31.6
Automobiles and trucks	31.0
Building materials and equipment	20.7
Machinery	16.7
Food other than meat packing	15.5
Petroleum	7.4
Tobacco	4.6
Rubber	2.1
Meat packing	.9
Textiles	.7

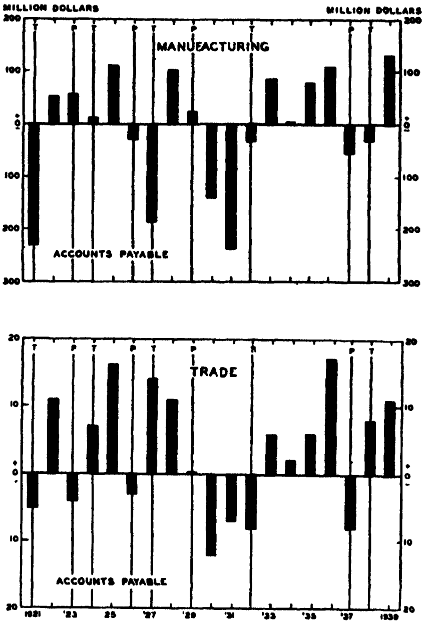
In trade, no one of the major groups had notes payable which averaged greater than cash holdings. The cash/notes payable ratio for the five groups during this period was:

Chain variety stores	87.9
Chain grocery stores	37.0
Miscellaneous chain stores	2.8
Mail-order houses	2.3
Department stores	1.6

Accounts Payable

Suppliers are of relatively slight importance in the financing of most large manufacturing corporations, but of some importance in financing certain large trade concerns. Their importance in both groups has, however, declined relative to alternative sources of financing.

The dollar volume of the accounts payable of our manufacturing sample decreased by $175 million, and that of the trade sample increased by $62 million, from 1921 through 1939. As in the case of notes payable, most of this decrease occurred during the depression years. The annual changes in payables of both samples varied roughly with fluctuations in general business activity although there were some contra-cyclical movements (for example, the decrease in payables in 1937). Six major manufacturing groups reduced, and five increased, their accounts payable. Among the trade groups accounts payable were increased more consistently than in manufacturing. In chain variety stores, payables were decreased in only three years (1930, 1931, and 1937).

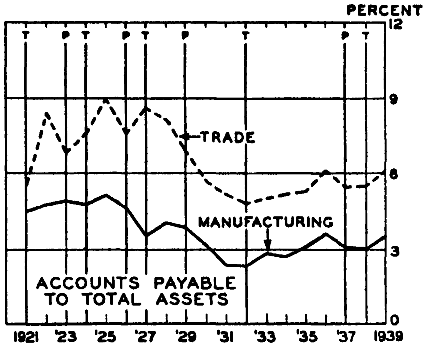


Compared to total assets, the accounts payable of our sample of large manufacturing enterprises exhibited a downward trend. In addition, the accounts payable/total assets ratio varied positively with the business cycle. Among the major manufacturing groups the ratio for the two-decade span varied as follows:

Automobiles and trucks	6.1%
Petroleum	4.9
Rubber	4.0
Meat packing	3.7
Building materials and equipment	3.1
Iron and steel	2.3
Food other than meat packing	2.2
Machinery	2.2
Textiles	2.2
Chemicals	1.9
Tobacco	1.2

The high ratio in the automobile industry is due primarily to the practice of purchasing parts made to order. Parts makers customarily allow automobile manufacturers 30-90 days' credit, a period somewhat longer than the process of assembling.

The trend of this ratio in every one of these major industrial groups was downward in the thirties. During the thirties the level of the ratio decreased almost 50 percent from that of the twenties for both building materials and equipment, and petroleum.



Accounts payable are a more important source of funds in trade than in manufacturing. The average ratio (6.2 percent) of accounts payable to total assets of our trade sample was over 70 percent greater than for our manufacturing sample (3.6 percent). Among the major trade groups, the variation was great, the ratio for the 19-year period varying as follows:

Chain grocery stores	13.2%
Miscellaneous chain stores	12.2
Department stores	5.5
Mail-order houses	5.4
Chain variety stores	2.8

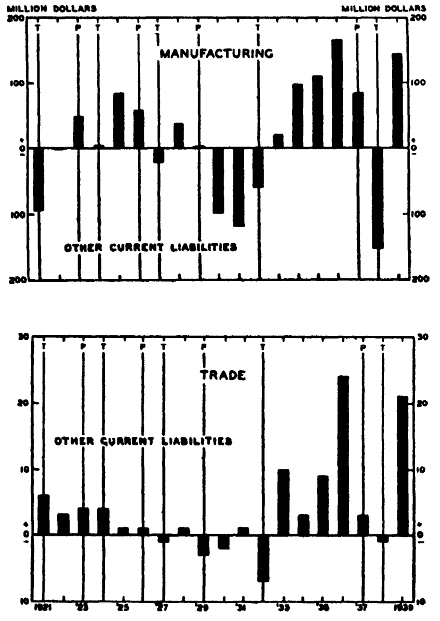
Over this period all these groups have decreased their trade payables relative to alternative sources of funds.

Other studies in the National Bureau's Business Financing Project indicate that trade creditors are a more important source of funds for small manufacturing companies.[9] The accounts payable/total assets ratio of small manufacturing corporations is almost twice that of medium-sized and large corporations. In trade, however, the medium-sized corporations have the smallest ratio of accounts payable to total assets. The accounts payable/total assets ratios of all manufacturing and trade corporations in 1937 by asset size classes were as follows: [10]

	Manufacturing	*Trade*
Small (less than $500,000)	14.6%	20.3%
Medium-sized ($500,000–10 million)	7.6	17.8
Large ($10 million and over)	7.7	20.9

Other Current Liabilities

Earlier in this chapter we noted the increase in other current liabilities relative to notes and accounts payable during the past two decades. These other current liabilities are largely made up of obligations to employees, bondholders, stockholders and government. Most of the increase in other current liabilities occurred during the last half of the thirties and was due to increases in tax accruals and reserves. These increases undoubtedly have been at least in part the result of uncertainty as to changes in corporate taxation. Some of them may in reality turn out to be surplus rather than liability reserves, in which case they will represent additional funds retained out of operations. In addition, some of the increase during the twenties may have been the result of a shift from a cash to an accrual method of recording expense, or of the reporting in the early years of accrued liabilities combined with accounts payable on financial statements.



It is difficult to analyze these early changes. For example, at a given point of time at which a balance sheet is drawn up, some labor services may have been utilized or "consumed" for which corresponding wage payments have not been made. Under a cash system of accounting, no charge to cost of sales would be recorded for these services until payment has been made for them, whereas under an accrual system such charges would be recorded even if payment has not been made. That part of the increase in accrued items which is the result of a shift in accounting method indicates a greater volume of funds retained from operations rather than an increase in the importance of the employee, bondholder, stockholder, or government as a source of funds. That is to say, under an accrual method of accounting, non-cash charges for unpaid but consumed services are debited to cost of goods sold and hence lead to an understatement of the portion of the cash sales dollar which is undistributed and available, at least temporarily, for general corporate purposes.

Another type of current indebtedness important in at least one manufacturing industry, aircraft and aircraft equipment, has been advance payments on government contracts. Since all the industries treated at length in this study have had a life of at least 20 years, the aircraft and aircraft equipment industry has been excluded. This industry, however, was a relatively insignificant part of the business economy of the United States in 1934–39. Total property expenditures of the United States Steel Corporation during these years, for example, were over five times greater than those of the 12 aircraft and aircraft equipment companies included in the Securities and Exchange Commission sample which were responsible for about four-fifths of the sales and total assets of the entire industry. The study by the SEC indicates that prepayments on contracts were the most important source of funds of 10 aircraft and 2 aircraft equipment companies for the period 1934–39.[11] Foreign military orders were the basis of most of these prepayments, the proceeds of which were kept on deposit with banks until utilized. During these years this source of funds provided slightly over $100 million, more than double total funds from operations or security sales.

• 5 •

FUNDS RETAINED FROM OPERATIONS

IN RECENT YEARS THERE HAS been much discussion in the literature of finance and economics concerning the importance of the total funds retained by large business corporations from operations —sometimes called "internal funds"—as contrasted to the funds secured from outside the business.[1] "Funds from operations" is defined as the excess of business receipts over dividends and other expenses which require an immediate outlay of funds, such as wages, materials, taxes, and interest. In other words, this item is comprised of undistributed earnings, depreciation accruals and a residue that is sufficiently described here as "other funds retained from operations." [2]

Earlier studies of corporate financing underestimated the importance of funds retained from operations relative to other sources of business funds; more recently there has been some tendency to overestimate the significance of funds retained from operations and this has given rise to a considerable amount of misconception. It has been shown, for example, that funds retained from operations have tended over the two decades to approximate gross capital formation. This is variously interpreted: as proof that we are in a declining economy, or that capital markets are not contributing to the functioning of business, or that large corporations no longer need outside financing. These statements may or may not be correct. Their validity is not, however, established by the high ratio of funds retained from operations to gross capital formation, which was to have been expected for the following reasons:

1. Depreciation accruals are an important element of gross business savings (that is, total funds retained from operations), amounting in fact to almost three-quarters of total funds, 1921–39, for large manufacturing, trade, railroad and telephone corporations combined. Over a number of years replacement expenditures tend to equal depreciation.

2. The period studied included some years when the economy was operating far below full capacity. The great depression itself may be evaluated as an evidence of stagnation, but the fact that

business enterprise did not invest depreciation accruals during this period is scarcely a proof of a declining economy.

TOTAL FUNDS RETAINED FROM OPERATIONS AND GROSS BUSINESS SAVING

It is impossible to secure completely satisfactory estimates of the total funds retained from operations by all business enterprises. A rough estimate of their volume can be secured, however, by adding together Simon Kuznets' net business saving estimates and Solomon Fabricant's depreciation and depletion estimates. In Table 8 the total funds retained from operations by our samples of manufacturing, trade, railroad and telephone companies are compared with the gross business saving of all manufacturing, trade and public utility enterprises, and of all business except farming, for selected groups of years.

The total funds retained from operations by our combined sample of large corporations in four broad industrial categories have contributed a larger proportion of total gross business saving since 1930 than in the previous decade. Actually, in 1930–33, business enterprises as a whole dissaved—that is, had negative gross saving of $1.1 billion—while our large concerns were saving $3.1 billion. During the recovery period, 1934–37, our combined sample retained funds amounting to 66 percent of total gross business saving.

In the manufacturing and trade industrial groups, too, the funds retained from operations by the large corporations were the equivalent of a greater proportion of gross business saving in the thirties than in the twenties. In manufacturing our sample retained funds equal to only 30 percent of gross manufacturing saving in 1921–29, as contrasted to 58 percent in 1930–33, and to 78 percent in 1934–37.

Large and medium-sized corporations as a group are responsible for more business saving than small corporations as a group, because such a great number of small concerns are unprofitable. In 1937, for example, all non-financial corporations had gross saving of $2.9 billion (Table 9). One half of one percent of all these corporations, holding 65 percent of the assets, accounted for 62 percent of gross saving. Medium-sized corporations had the highest proportion of savings: with only 23 percent of total corporate assets, they were responsible for 31 percent of total gross corporate saving. The 92 percent of the corporate universe in the smallest total asset size class (with 12 percent of total corporate assets) were responsible for only 7 percent of corporate saving.

Table 8—TOTAL FUNDS RETAINED FROM OPERATIONS BY A SAMPLE OF LARGE CORPORATIONS COMPARED WITH GROSS CORPORATE BUSINESS SAVINGS, 1921–37[a] (*dollar figures in billions*)

Years	*Industry*	*Total Funds Retained from Operations by Sample*	*Gross Corporate Business Savings*	*Total Funds Retained by Sample as a Percent of Gross Business Savings*
1921–29	Manufacturing	$7.9	$26.0	30%
	Trade	.5	11.8	4
	Transportation & other public utilities	7.2[b]	10.6	68
	ALL BUSINESS	15.6[c]	79.2	20
1930–33	Manufacturing	1.5	2.6	58
	Trade	.2	−.3	[d]
	Transportation & other public utilities	1.4[b]	3.8	37
	ALL BUSINESS	3.1[c]	−1.1	[d]
1934–37	Manufacturing	3.6	4.6	78
	Trade	.2	.6	33
	Transportation & other public utilities	1.7[b]	3.7	46
	ALL BUSINESS	5.5[c]	8.3	66
1921–37	Manufacturing	13.0	33.3	39
	Trade	.9	12.2	7
	Transportation & other public utilities	10.3[b]	18.1	57
	ALL BUSINESS	$24.2[c]	$86.5	28%

[a] Gross business saving is net business saving plus depreciation and depletion accruals. The data on net business saving are Kuznets' revised estimates and were secured directly from the National Bureau. Data on depreciation for 1921–35 and depletion for 1925–35 were computed from National Bureau of Economic Research, *Capital Consumption and Adjustment*, by Solomon Fabricant (1938) pp. 32, 39. Figures for 1936 and 1937 were estimated from *Statistics of Income* using Fabricant's methods.

[b] Class I railroads and their lessor companies and the Bell Telephone System.

[c] Sample of large manufacturing and trade corporations, all Class I railroads and their lessor companies, and the Bell Telephone System. See Appendix A for coverage of the manufacturing and trade sample. Data for some corporations were not available in the earlier years.

[d] Negative percentage.

Table 9—GROSS SAVINGS OF ALL NON-FINANCIAL CORPORATIONS, 1937, BY SIZE OF CORPORATION[a] (*dollar figures in billions*)

Size	*Number*	*Total Assets*	*Gross Savings*	PERCENTAGE DISTRIBUTION *Number*	PERCENTAGE DISTRIBUTION *Total Assets*	PERCENTAGE DISTRIBUTION *Gross Savings*
Small (under $500 thousand)	294,297	$20	$.2	92.4%	12%	7%
Medium-sized ($500 thousand-10 million)	22,491	38	.9	7.1	23	31
Large ($10 million and over)	1,676	105	1.8	.5	65	62
TOTAL	318,464	$163	$2.9	100.0%	100%	100%

[a] Computed from Bureau of Internal Revenue, *Statistics of Income for 1937*, pp. 80-81 and 135-36, and from the *Source Book of Statistics of Income* maintained in worksheet form in Washington. Gross savings equals compiled net profits, minus income and excess-profits taxes and cash dividends paid, plus depreciation and depletion.

FLUCTUATIONS IN TOTAL FUNDS RETAINED FROM OPERATIONS

The ultimate source of all funds retained from operations is the cash sales dollar. The amount retained in the business is indicated on financial statements by the net income after dividends, adjusted for all non-cash charges and credits.

Total funds retained from operations have always been an important source of business funds. For 1921–39 the manufacturing, trade, railroad, and telephone companies in our sample had total funds retained from operations amounting to $26.9 billion, a sum considerably in excess of their security sales during these years. The annual volume of such funds fluctuated greatly with business activity, increasing in expanding years and decreasing in contracting years. It dropped, for example, from an annual high of $2.6 billion in 1929 to $.2 billion in 1932.

The enterprises in our manufacturing sample accounted for over 50 percent of the total funds retained by the concerns in these four broad industrial categories. A large part of these manufacturing funds was held by the integrated petroleum concerns in the sample. In total manufacturing as well as in the major manufacturing groups total funds retained from operations fluctuated greatly with different phases of the business cycle. For example, in 1932 for all manufacturing these funds were but 2 percent of those in 1929. All manufacturing groups (except petroleum, food other than meat packing, and chemicals) experienced at least one year in which these funds were negative.

The large retail trade corporations accumulated funds from operations at a steadier rate than the manufacturing concerns. This was particularly true of the chain grocery stores and chain variety stores.

RELATIVE IMPORTANCE OF TOTAL FUNDS RETAINED FROM OPERATIONS

Much of the recent discussion of big business financing implies that total funds retained from operations (internal funds) have become more and more important during the past two decades. Our samples of manufacturing and trade corporations do not present clear evidence of this. In Table 10 total funds retained from operations by these concerns are compared with (1) their fixed capital expenditures, and (2) their fixed capital expenditures plus changes in net working capital. Fixed capital expenditures include fixed property expenditures and investments in subsidiaries and affiliates; changes in net working capital include changes in total current assets minus changes in total current liabilities.

Total funds retained by manufacturing were in 1921 the smallest percentage of fixed capital expenditures plus changes in net working capital. After this year, the lowest percentage was found to be in 1938 for manufacturing, in 1936 for trade. In other words, although large enterprises retain a high proportion of funds from operations relative to these expenditures, this relationship is not new but has endured for at least two decades.

Examining the cyclical character of funds retained from operations, we see some differences in importance in specific phases of the cycle relative to (1) fixed capital expenditures, and (2) fixed capital expenditures plus changes in net working capital. Although funds retained from operations and fixed capital expenditures fluctuate positively with changes in business activity, fluctuations in the former are greater. The net working capital of these large corporations is usually decreased in years of depression, and the result of adding fixed capital expenditures to net working capital changes is to obtain a series which exhibits greater cyclical fluctuations than

Table 10—TOTAL FUNDS RETAINED FROM OPERATIONS BY A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS IN RELATION TO FIXED CAPITAL OUTLAYS, AND TO FIXED CAPITAL OUTLAYS PLUS CHANGES IN NET WORKING CAPITAL, 1921–39[a] (*dollar figures in millions*)

Year[b]	MANUFACTURING			TRADE		
	Total Funds Retained from Operations			*Total Funds Retained from Operations*		
	Amount	As a % of Fixed Capital Outlays	As a % of Fixed Capital Outlays Plus Changes in Net Working Capital	Amount	As a % of Fixed Capital Outlays	As a % of Fixed Capital Outlays Plus Changes in Net Working Capital
1921 (T)	$142	25%	40%	$−4	−39%	[c]
1922	488	113	93	36	204	180%
1923 (P)	745	86	72	52	220	137
1924 (T)	772	138	97	56	230	124
1925	1,053	131	96	64	148	97
1926 (P)	1,107	109	87	63	189	91
1927 (T)	912	88	87	70	172	101
1928	1,246	124	95	91	85	55
1929 (P)	1,459	85	74	89	81	48
1930	717	56	81	43	67	64
1931	220	37	127	51	146	142
1932 (T)	35	9	[c]	22	87	2,200
1933	524	133	132	72	596	131
1934	610	120	113	67	270	112
1935	862	138	122	73	281	128
1936	984	118	103	42	134	37
1937 (P)	1,115	89	75	48	118	102
1938 (T)	688	94	67	51	164	96
1939	974	136	95	80	182	94
1921–39	$14,653	95%	89%	$1,066	143%	88%

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.
[b] For peaks and troughs, see Table 5, footnote b.
[c] Fixed capital outlays plus changes in net working capital negative.

total funds retained from operations. In years of prosperity, as a rule, fixed capital expenditures and net working capital changes substantially exceed, while in periods of depression they fall considerably below, total funds retained from operations.

Among the major manufacturing groups the ratio of total funds retained from operations to fixed capital expenditures varied markedly for the entire period, from 2.37 for tobacco companies to .67 for meat packers. In trade, the ratio varied from 1.62 for chain grocery stores to 1.11 for department stores.

FLUCTUATIONS IN UNDISTRIBUTED EARNINGS

The manufacturing sample had undistributed earnings (net income less cash dividends) of $3.8 billion over the period studied. This volume fluctuated greatly, dropping from a 1929 *peak* of over $700 million to a *negative balance* of over $500 million in 1931. Among the major manufacturing groups, only textile and meat packing companies had a negative balance for the entire period. In 1932, on the other hand, all industries except tobacco found themselves in such a position.

The trade concerns collectively and by major groups retained earnings more consistently than the manufacturing concerns. This is not surprising in view of the greater stability of earnings of trade corporations and the presence in our sample of many fast-growing, profitable groups of chain stores. Chain grocery stores and chain variety stores had positive undistributed earnings in every year but one during the past two decades.

Railroads were responsible for large retained earnings during the twenties, $2.4 billion. In the thirties, however, losses after dividends totaled $1.2 billion. Railroads, some in bankruptcy or receivership, have cut interest and dividend payments drastically. In spite of these reduced payments to security holders, losses after dividends have been incurred in every year since 1929 except 1936.

The Bell Telephone System also had substantial retained profits for 1921–29, over $400 million; since that time it has had a negative balance after dividends of almost $100 million. Although these telephone companies have not been weak and unprofitable like the railroads, they have experienced declining revenues; dividend payments have been maintained in the face of this decline according to a policy of the System. Actually, there was less need for the retention of funds in the telephone business in the thirties than there was during the preceding decade.

UNDISTRIBUTED EARNINGS AND CASH DIVIDENDS

The amount of earnings available for reinvestment in the business depends among other things on the timing and magnitude of cash dividends. Such payments are subject, to a great extent, to the discretion of business management. For the broad industrial groups, manufacturing, trade, railroads, and telephones, cash dividends were much more stable than net income. In addition, dividends lagged behind income, failing to rise as rapidly or to as great an extent in periods of increasing business activity as well as failing to fall as rapidly or to as great an extent in periods of decreasing business activity. This stability of cash dividends reflects the presence of fixed-dividend preferred stock in the financial structure of some companies as well as the desire of management to maintain regular disbursements to stockholders. Payments in excess of income and, in some cases in spite of deficits, in the early thirties were financed mainly by liquidations of current assets which had been built up in preceding years.

For the manufacturing sample as a whole, earnings exceeded dividends in all but five years. Over the entire period, these corporations paid out over three-quarters of earnings in dividends. To phrase it differently, $3 went to the stockholders for every $1 which was ploughed back into the business.

Among the major manufacturing groups, the variation in dividend policy was marked, the ratio of cash dividends to net income for the entire period varying as follows:

Petroleum	66%
Building materials and equipment	69
Food other than meat packing	75
Rubber	77
Automobiles and trucks	78
Chemicals	79
Machinery	83
Tobacco	84
Iron and steel	87
Meat packing	125
Textiles	536

The meat packing and textile companies paid out more in dividends than they earned, textile companies paying out $91 million in dividends while earning only $17 million.

Trade corporations paid out a smaller proportion of their earnings in dividends (about 60 percent). For every $3 that went to the stockholders of the 27 large trade corporations, $2 was retained in the business. Earnings for the entire group exceeded dividends in every year except 1921 and 1932. For the period as a whole, however, there was a decided downward trend in the relative proportion of earnings retained in the business, the ratio of cash dividends to net income increasing from an annual average of 60 percent for 1921–29 to 72 percent for 1934–39.

The disparity among the various trade industries also was much less than in manufacturing. For the entire period, the disbursement ratio for each of the five industries was:

Department stores	62%
Miscellaneous chain stores	62
Chain grocery stores	61
Chain variety stores	61
Mail-order houses	60

Railroads and telephone companies, on the other hand, paid out a much greater proportion of their earnings than either manufacturing or trade concerns. Over the two decades, the Bell Telephone System paid out $1 to its stockholders for every 12 cents which was retained in the business. Dividends exceeded earnings in 1932–35 and in 1938. In no year did telephone companies fail to pay out at least three-fifths of their income. The sizable and stable dividends of the American Bell (later the American Telephone and Telegraph Company) have never failed to impress students of corporation finance. For the period 1881–99, dividends of American Bell averaged nearly $15 per share annually, and since then the dividends of A.T.&T. have ranged from $7½ to $9. Indeed, from 1922 through 1939 a $9-per-share dividend was paid annually, even during the severe depression years of 1932–35.[3]

The large proportion of railroad earnings that was paid out in dividends was the result of the depressed state of earnings in the industry, especially since 1929, rather than an indication of large dividend disbursements as in the case of the telephone industry. Although for the entire period the railroads reinvested about 60 cents for every dollar paid out in dividends, since 1929 (except in 1936) they paid out as a group more in dividends than they earned. In 1932, Class I railroads and their lessor companies paid out almost $150 million in dividends in spite of losses of over $100 million.[4]

FLUCTUATIONS IN DEPRECIATION ACCRUALS

Another important component of total funds retained from operations is the annual charge to income for depreciation.[5] The depreciation charge is not in itself a producer of cash funds and we must not allow ourselves to think of this charge as a supplier of so many cash dollars a year. It is rather an estimate of the property "used up" in the course of business, which must some day be replaced if the producing unit is to be maintained intact.

Yet as we have seen in Chapter 2, the bookkeeping recognition of wear and tear on property by charges for depreciation and the expenditures on property do not occur simultaneously. This difference in timing may lead to the availability at given periods of time of disposable funds from depreciation accruals for general corporate purposes. During the twenties, for example, the United States Steel Corporation kept its depreciation, insurance and pension reserve accruals invested in readily marketable securities. These accruals were utilized for other purposes than financing fixed capital replacements, in 1929 to finance bond retirements and in the thirties for working capital requirements.

Over a period of years, however, most corporations—unless they are in process of liquidation—spend at least the equivalent of their depreciation accruals to replace depreciated assets. Indeed, for an individual company depreciation accruals, plus writedowns and less writeups of property, should in theory equal property expenditures over the life of the company.

Over the period studied the combined depreciation accruals of our samples of large manufacturing and trade corporations, all large railroads and telephone companies total more than $17 billion, over 2½ times their net undistributed earnings of $6.2 billion. These accruals were not only larger but also more consistent than undistributed earnings. For the combined sample they rose steadily from $.5 billion in 1921 to $1.1 billion in 1929. They dropped to $.9 billion in 1934 but rose again to almost $1.1 billion in 1939.

The accruals of the manufacturing concerns are large relative to the accruals of the other industrial groups, not only because of the importance of manufacturing in total business, but also because of the importance of fixed assets in the financial structure of such concerns. A large proportion of these accruals are attributable to the petroleum companies in our sample because of the inclusion of intangible development costs and depletion of oil wells in the depreciation figures of oil companies, and because of the high rate of technological change in refining equipment.

These data on depreciation accruals suffer from several limitations in an analysis of the industrial distribution of charges for capital consumption. The data do reflect, it is true, the relative value and age of the fixed assets and the depreciation methods of individual industries. However, they also reflect the differences in coverage of the individual industries included in our sample. Moreover, one industry may charge off certain expenditures directly to income while another may capitalize them and charge them off in future periods. In the case of steam railways, for example, depreciation in 1934 was but 16 percent of maintenance charges; for trade, it was 277 percent.[6] The ratios of depreciation to maintenance in the other major industrial classifications included in this study were:

Manufacturing	137%
Electric light and power	132
Telephones	89

Since our analysis has been restricted to capitalized expenditures and the sources of their financing, these industrial differences in bookkeeping practices somewhat handicap strict industrial comparisons of property expenditures and depreciation accruals. Unfortunately, data on maintenance expenditures with which to correct for the different practices of recording capital consumption are fragmentary for most industries prior to the formation of the Securities and Exchange Commission.[7] In the case of railroads, however, for which adequate data are available and in which such expenditures are relatively most important, maintenance charges amounted to almost $27 billion in 1921–39, considerably more than twice the amount expended on capitalized property.[8]

DEPRECIATION AND SALES

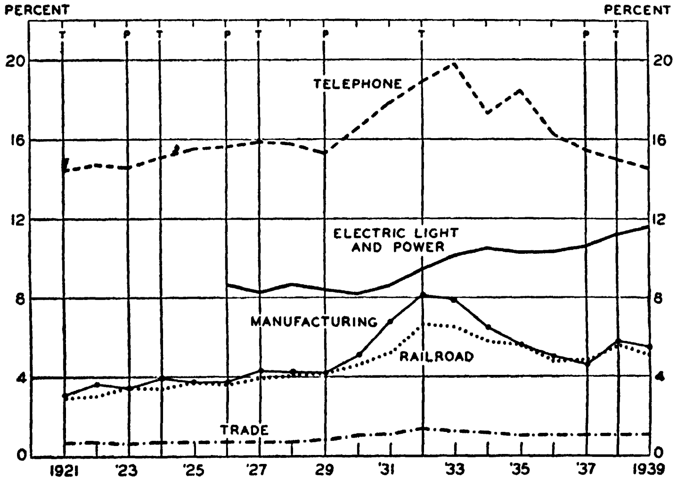
One way of measuring the relative importance of depreciation accruals among different industries is to compare their ratios of depreciation to sales (Chart 9). For the entire 19-year period the average ratios of the major industrial groups studied varied as follows:

Telephones	16.2%
Electric light and power (1926–39)	9.7
Manufacturing	5.0
Railroads	4.3
Trade	.9

Depreciation charges relative to operating revenues in the telephone industry are very large, reflecting its long-lived fixed property, the comparative unimportance of raw material costs, and the rapid developments and inventions in telephony during the past two decades. There has been no tendency for the level of depreciation accruals of telephone companies, relative to revenues, to change during these years.[9]

CHART 9

RATIO OF DEPRECIATION TO SALES FOR LARGE CORPORATIONS, BY INDUSTRY, 1921–39°



°Based on Tables A-2, A-38, A-56, A-57 and A-58 in Data Book.

Since the major portion of the capital consumption of the railroad industry is recorded by maintenance expenditures, its low ratio of depreciation to sales is not surprising, in spite of the importance of railroad fixed assets. This difference in accounting for capital consumption may be due in part to the influence of the profits position of the industry.[10] A probable effect of the accounting practices of railroads is to postpone maintenance expenditures in poor years and to increase them in good years. In other words, for any given year it is within the discretion of railroad management to decide what proportion of consumed service life to replace, and what proportion not to replace, in order to have funds available for other purposes. There has been a noticeable increase in the level of the ratio of depreciation to operating revenues of railroads during the past two decades. The depressed state of operating revenues during the past ten years has been the chief reason for this increase.

Among large manufacturing corporations, as in the case of railroads, there appears to have been an increase in the ratio of depreciation to sales in the thirties as contrasted to the twenties. For our sample, the ratio increased from an annual average of 3.4 percent in 1921–23 to 5.3 percent in 1937–39. The increase in the ratio during the thirties was due largely to the greater decrease in sales than in depreciation. Whereas sales dropped from $12.6 billion to $6.1 billion (52 percent) for 1929–32, depreciation accruals dropped from $533 to $495 million (only 7 percent).

The distribution of the aggregate ratios of depreciation to sales for major manufacturing industries for the two-decade period was marked, ranging as follows:

Petroleum	10.6%
Chemicals	6.6
Iron and steel	6.1
Building materials and equipment	4.3
Rubber	3.6
Automobiles and trucks	3.2
Machinery	3.2
Food other than meat packing	3.2
Textiles	3.1
Meat packing	.9
Tobacco	.5

The large ratio in the case of petroleum companies, as has been suggested before, is due to the inclusion of intangible development costs and the depletion of oil wells in the depreciation figure as well as to the high obsolescence of refining equipment. The importance of fixed depreciable assets in chemical and iron and steel companies explains their high ranking. The inclusion of depletion of mines and quarries in the depreciation figures of building materials and equipment companies helps to explain their position on the list. At the other end of the ranking, tobacco companies require little fixed plant and equipment in their operations. The cost of tobacco and the building up of good will through advertising are much more important business costs. In the case of meat packing, raw material and labor costs far outweigh the costs of fixed capital allocable to a given unit of product.

Fixed property, and hence depreciation, are relatively unimportant in trade. For the retail trade companies represented in our sample the aggregate ratio of depreciation to sales for the period 1921–39 was less than 1 percent. This ratio averaged 1.1 percent during the thirties as contrasted to .7 during the twenties; the increase was due to a greater relative increase in depreciation than in sales.[11] Recent figures reflect the depreciation of property acquired during the late twenties when the mail-order houses went into the retail store business and when department stores spent lavishly on modernization and luxurious fixtures and equipment. Among the five groups of trade companies included in the sample, the ratio of depreciation to sales for the 19-year period varied as follows:

Miscellaneous chain stores	1.4%
Department stores	1.2
Mail-order houses	1.2
Chain variety stores	1.1
Chain grocery stores	.6

FLUCTUATIONS IN "OTHER FUNDS RETAINED FROM OPERATIONS"

Our third component of total funds retained from operations, "other funds retained from operations," is in the main the algebraic sum of all other non-cash charges and credits to income and changes in surplus reserves. In the case of railroads a number of miscellaneous sources of cash income are included under this heading. Among these we find profit on the sale of property and miscellaneous assets; certain non-operating income which is earned by railroad subsidiaries but not taken directly into the parent company in the form of dividends or interest; and aids, grants, and gifts from cities, corporations, or individuals to assist the railroad in developing some facility which would be of benefit both to the donor and to the railroad.

For our samples of large manufacturing, trade, telephone, and railroad companies, the volume of these funds varied directly with business activity, increasing in years of recovery and prosperity and decreasing in years of recession and depression. Other funds for railroads were substantially larger than undistributed earnings, because of the severe operating losses sustained during the thirties.

Other funds from operations of manufacturing concerns, when positive, are largely due to accruals to capital, pension, or insurance reserves, which are set up to provide for future contingencies. These funds were substantially less than undistributed earnings.

The volume of other funds from operations of the Bell Telephone System was dominated by service-pension accruals charged to operating expenses, and interest received from investments of the Pension Fund, largely in unsecured promissory notes of Bell telephone companies. The Pension Fund had assets of over $200 million in 1939. The Bell Telephone System was in fact one of the largest insurance institutions in the country. This source of funds provided telephone companies with an economical means of obtaining needed capital for plant extensions.

• 6 •

THE SECURITIES MARKET

IN THE POPULAR VIEW, corporate financing is a process of selling securities—stocks and bonds—to the public through the capital, or securities, market. This is the aspect of business financing that is best known. Thousands, or even hundreds of thousands, of individuals may own shares in one of the large corporations. In 1935 there were, for example, 659,000 stockholders on the books of the American Telephone and Telegraph Company—a number almost equal to the number of voters in the five smallest states.[1]

The popular view covers one of the primary functions of the capital market, namely, to provide new funds for business expansion by tapping the savings of great numbers of individuals. A second major function of the market is to provide a mechanism for corporate liquidity adjustments, through the purchase and sale of readily marketable securities, including government obligations. The capital market has two other functions. It eases the problem of corporate refinancing as conditions change, permitting the conversion of less desirable securities to types more profitable at a given time. Finally, the capital market provides the means of intercorporate investment, through the purchase of securities of subsidiaries and affiliates.[2]

It has been said that if a capital market did not exist to perform these functions it would be necessary to invent one. It has also been said that corporations no longer need the capital market as they did in earlier periods of business development. The arresting phrase, "capital not wanted," [3] expresses a fairly widespread belief.

This chapter is concerned with the question of whether the securities market has shifted its functions or changed in importance over the period between the two World Wars.

In obtaining a sufficient answer to this question it is necessary to keep in mind the several functions of the market. It is not enough to note that the public bought fewer securities in the thirties than in the twenties nor the corollary of this, that business enterprises did not obtain as much "new funds" from the capital market in the second decade.

The short period of time, 1920–39, includes a period of high speculative activity in which the market played a role of exceptional significance. This was followed by the severe depression of the early thirties, which was in turn succeeded by a considerable expansion in the late thirties. With such a restricted time span under consideration, conclusions as to long-term tendencies would be inappropriate.

We shall find evidence of what was to be expected, that the financing policies of large corporations are greatly influenced by cyclical business conditions. Differences are also to be found in the behavior of corporations as to the degree of resort to the capital market for financing and as to the timing of such financing.

Two general statements can be made regarding the capital market as a source of new funds for large-scale corporate business over the two decades. First, since security sales decrease with slackening business activity and since the last half of the period included more years of business contraction than the first half, security sales declined over the period. However, in years of business expansion during the thirties security sales were as important (if not more) relative to asset expansion, sales, profits, and alternative sources of funds as they were during the expansion years of the twenties.

The evidence is clearest for our largest sample, manufacturing. While securities sales of manufacturing concerns declined over the period, a sharp rise occurred in 1937 and 1938. In 1938 new funds from the market offset the highest proportion of fixed capital expenditures of any year in the two decades (48 percent in 1938, 33 percent in 1929). While new funds declined in the thirties undistributed earnings declined even more as a source of funds for corporate expansion; in the twenties new funds from the securities market amounted only to 52 percent of undistributed earnings but in the thirties new funds were 187 percent of undistributed earnings.

SECURITY TRANSACTIONS OF LARGE CORPORATIONS

A relatively small number of large, profitable, long-lived corporations sell the lion's share of publicly offered securities. For the year 1929 and for the period 1935–38, George Eddy has estimated the volume of total security issues of domestic corporations which resulted in "real investment." By this he means security issues whose proceeds are used directly in the expansion of business and the creation of employment, excluding all issues whose proceeds are used to acquire existing securities.[4]

Our samples of large manufacturing and trade corporations accounted for a considerable part of the estimated total security issues: [5]

Year	*Eddy Estimate Total Issues* (billions)	*Issues of Manufacturing and Trade Samples* (billions)	*Issues of Two Samples as a % of Total Issues*
1929	$2.0	$.7	35%
1935	.3	.1	33
1936	.9	.3	33
1937	1.1	.6	55
1938	.8	.4	50

The character of the capital market makes it most serviceable to big business, so it is not surprising that our manufacturing and trade samples accounted for a high percentage of all issues, from 33 to 55 percent.

As illustrated in Chart 10, the security sales of the manufacturing sample and of the Bell Telephone System were consistently sizable during the twenties, culminating in the peak sales of 1929 [6] for manufacturing, 1930 for Bell. The two samples sold a considerable volume of securities in the expansion years of 1936 and 1937 and the contraction year of 1938.

Manufacturing

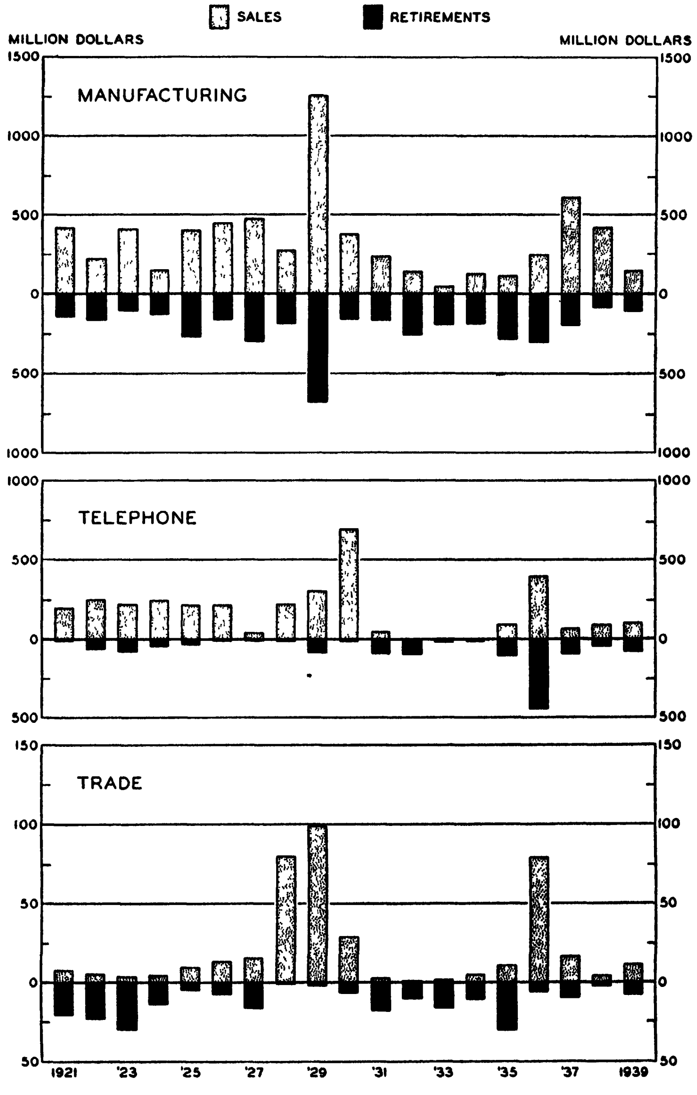
Over the entire period, the 84 large manufacturing corporations made the following use of the capital market:

obtained	$6.5 billion from security sales
paid out	4.0 billion in security retirements
derived	2.5 billion of new funds to finance expansion

If we exclude the highly exceptional year of 1929, in which the volume of securities sold was more than twice that of any other year in the two decades, and also exclude the depression years of the thirties, we have grounds for a comparison. In the twenties (excluding 1929) the average annual volume of securities sold exceeded the volume of the 1934–39 period. Retirements were slightly greater in the second period, with the result that these manufacturing companies secured a lower volume of new funds

CHART 10

SECURITY SALES AND RETIREMENTS OF LARGE CORPORATIONS, BY INDUSTRY, 1921-39[a]



[a] Based on special tabulations of the National Bureau of Economic Research

from the capital market. However, it is worthy of note that toward the end of the thirties a considerable volume of securities was again sold. Issues of 1937 were larger than in any other year of the two decades, with the exception of 1929, while the volume of issues in 1938 was topped in the twenties by only two years, 1929 and 1927.

The year 1929 was exceptional also in the volume of security retirements. This was dominated by United States Steel's retirements of bonds of $394 million, partly with the proceeds of $150 million common stock sales and partly by the liquidation of a substantial volume of marketable securities previously retained as assets behind depreciation and pension reserves. In 1932–36, security retirements exceeded sales. Many large corporations took advantage of the prevailing low, long-term money rates to repay or refund indebtedness acquired in earlier years.

Reliance upon the securities market varies among the different enterprises as the result of complex influences, including the growth, production technique, profitability, size and business policy of the different concerns. This is shown in Table 11 where the manufacturing and trade samples are stratified industrially.

We see that the petroleum and the iron and steel industries sold the largest volume of securities, reflecting the industrial growth, size and financial expansion of concerns in these two groups.[7] The two industries also lead in the volume of new funds obtained from the securities market.

In five of the eleven manufacturing groups, security sales of some companies were more than offset by retirements of other companies, resulting in an excess of retirements for the industry as a whole. This was notably the case for the automobile, meat packing, and other food industries.

Tobacco, with 245 percent, and rubber, with 88 percent, had the highest ratios of security sales to fixed property expenditures. These high percentages reflect the modest importance of fixed capital and the high importance of current assets (particularly inventory) in the operations of the tobacco and rubber industries.

Tobacco also obtained the highest percentage of new funds relative to fixed property expenditures, 76 percent, while the chemical industry, which sustained a marked expansion over the period, was second, with a ratio of 47 percent.

Finally, the effect of industry and financial expansion on the volume of security sales and new funds is illustrated in the last two

Table 11—SECURITY SALES AND NEW FUNDS OBTAINED FROM THE SECURITIES MARKET BY A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS IN SELECTED INDUSTRIES, 1921–39, AS A PERCENTAGE OF FIXED PROPERTY EXPENDITURES AND OF TOTAL ASSETS IN 1923[a] *(dollar figures in millions)*

Industry	DOLLAR VOLUME				PERCENT OF FIXED PROPERTY EXPENDITURES		PERCENT OF TOTAL ASSETS IN 1923	
	Total Security Sales	*New Funds from Security Sales*	*Fixed Property Expenditures*	*Total Assets in 1923*	*Total Security Sales*	*New Funds from Security Sales*	*Total Security Sales*	*New Funds from Security Sales*
MANUFACTURING								
Petroleum	$3,065	$1,755	$6,993[b]	$3,993	37%[b]	19%[b]	77%	44%
Iron and steel	1,362	355	2,109	3,786	65	17	36	9
Rubber	407	119	460	630	88	26	65	19
Chemicals	407	273	686[b]	738	59[b]	47[b]	55	37
Automobiles and trucks	293	−129	1,035	845	28	−12	35	−15
Machinery	265	−20	496	1,184	53	−4	22	−2
Tobacco	206	49	58[b]	541	245[b]	76[b]	38	9
Building materials and equipment	204	131	431	370	47	30	55	35
Meat packing	161	−76	325	1,040	50	−23	15	−7
Food other than meat packing	63	−25	154	292	41	−16	22	−9
Textiles	38	−5	64	352	59	−8	11	−1
TRADE								
Mail-order houses	195	117	201	200	97	58	98	59
Chain variety stores	115	15	222[c]	187	46[c]	7[c]	61	8
Chain grocery stores	59	37	166	90	36	22	66	41
Department stores	20	0	40	55	50	0	36	0
Miscellaneous chain stores	9	6	14	12	64	43	75	50

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] Excludes companies for which depreciation was not available.

[c] Excludes one company for which depreciation was not available.

Table 12—TOTAL SECURITY TRANSACTIONS OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921–39[a] (*in millions*)

Year[b]	*Sale of Own Securities*		*Retirement of Own Securities*		*New Funds*		*Purchase of Securities of Subsidiaries and Affiliates*		*Purchase or Sale of Marketable Securities*[c]		*Sales Less Purchases and Retirements of Securities*[d]	
	Mfg.	Trade	Mfg.	Trade	Mfg.	Trade	Mfg.	Trade	Mfg.	Trade	Mfg.	Trade
1921 (T)	$415	$7	$142	$21	$273	$—14	$192	$14	$107	$12	$—26	$—40
1922	222	5	170	23	52	—18	69	1	25	—9	—42	—10
1923 (P)	407	3	109	29	298	—26	290	5	29	—5	—21	—26
1924 (T)	146	4	130	13	16	—9	61	1	47	1	—92	—11
1925	392	9	274	4	118	5	189	1	49	2	—120	2
1926 (P)	446	13	163	6	283	7	192	3	180	12	—89	—8
1927 (T)	474	16	306	16	168	0	113	3	46	11	9	—14
1928	273	80	185	1	88	79	224	34	151	—12	—287	57
1929 (P)	1,256	100	680	2	576	98	586	25	—19	—2	9	75
1930	375	29	159	6	216	23	291	29	—204	—8	129	—8
1931	234	3	169	17	65	—14	183	—10	139	43	—257	—53
1932 (T)	140	1	255	9	—115	—8	54	9	—225	—26	56	12
1933	46	2	188	16	—142	—14	98	[e]	118	—4	—358	—10
1934	127	5	179	10	—52	—5	53	9	—184	—16	79	2
1935	114	10	278	29	—164	—19	39	—3	—106	—3	—97	—13
1936	245	79	307	6	—62	73	36	3	—84	1	—14	69
1937 (P)	601	18	180	8	421	10	47	2	—26	—1	400	9
1938 (T)	424	4	76	2	348	2	50	2	—38	—5	336	5
1939	143	12	105	7	38	5	95	6	123	4	—180	—5
						AVERAGE ANNUAL VOLUME						
1921–39	341	21	213	12	128	9	151	7	7	[e]	—30	2
1921–29	448	26	240	13	208	13	213	10	68	1	—73	3
1930–39	245	16	190	11	55	5	95	5	—49	[e]	9	1
'30–33	199	9	193	12	6	—3	157	7	—43	1	—108	—15
'34–39	276	21	188	10	88	11	53	3	—52	—3	87	11

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] For peaks and troughs, see Table 5, footnote b.

[c] Positive figures indicate purchases; negative figures, sales.

[d] Positive figures indicate sales; negative figures, purchases.

[e] Less than $500,000.

columns of the table. Fast-growing industries (like petroleum, building materials, and chemicals) had high percentages of security sales and new funds in comparison with their 1923 asset size while slow-growing industries (like textiles, meat packing, other foods, and machinery) sold the smallest volume of securities relative to their 1923 asset size, and had negative percentages of new funds from the market. The automobile industry, which occupied a position of notable independence of the capital market, was an exception among the fast-growing industries.

Trade

The security sales of our sample of large trade concerns were insignificant except in three years, 1928, 1929, and 1936. Over the two decades these concerns made the following use of the capital market:

obtained	$400 million from security sales
paid out	225 million in security retirements
derived	175 million of new funds to finance expansion

The two mail-order houses in the sample were responsible for a large part of trade security sales. Most security retirements occurred in the early twenties and early thirties. The considerable retirements in the early twenties were largely repayments of long-term debt by one mail-order house.

In trade also the relative importance of security sales and new funds varied greatly among major groups (see Table 11). Industrial differences in the dollar volume of security sales are not as marked, however, for trade as for manufacturing. It should be remembered that the coverage of the trade sample is less complete.

Mail-order houses had the highest ratio of security sales to fixed property expenditures and also the highest ratio of new funds, reflecting a need for a substantial volume of funds during the late twenties to finance the acquisition of retail store outlets. The rapid growth of the two miscellaneous chain store companies—one dealing in shoes, the other in furniture—is clearly indicated by the ratios of security sales and new funds to total assets. Over the period, these two concerns sold securities of $75 and obtained $50 of new funds for each $100 of their assets in 1923. Department stores retired approximately the same amount of securities as they issued. In none of the trade groups did security retirements exceed security sales for the period under consideration.

Summary of Manufacturing and Trade Security Transactions

The significance of the securities market in the financing of large business enterprises is not to be assessed solely in terms of the sale and retirements of their own securities. Such enterprises also use the capital market to buy and sell the securities of other corporations, either for purposes of temporary investment or permanent control. Since from one-third to one-half (and possibly more) of all cash dividends paid out by American corporations in 1934–37 were received by other corporations, it can be said that a substantial part of corporate America is owned by the rest of corporate America.[8]

When we take into consideration all the security transactions of the manufacturing sample we find that over the period between the two World Wars $6½ billion of securities were sold while $7 billion were purchased. Over $4 billion (57 percent) of these security transactions involved retirements of the companies' own securities; almost $3 billion (41 percent) were purchases of the securities of affiliates and subsidiaries; and only a little more than $100 million (2 percent) were purchases of readily marketable securities.

These summary figures for the entire period are derived from Table 12, which gives the data annually. The manufacturing sample put back more funds than it took out of the market over the entire period and in twelve of the nineteen years as well. Caution is necessary in evaluating this finding, for it is the composite result of subtracting from new funds all investments in subsidiaries and purchases of marketable securities while adding sales of marketable securities. Investment in subsidiaries is one method of expanding individual enterprises, while transactions in marketable securities represent adjustments in corporate liquidity positions in accordance with the needs of changing conditions. Further, it is short-sighted to assume that funds which flow back to the capital market from large corporations become idle money. Such resources are made available for other possible investments in the economy.

In contrast to manufacturing, the trade sample took out more funds than it put into the capital market over the entire period.

However, this was not the case in every year. The large flotations in three years have already been noted.

Bell Telephone System

The Bell Telephone System continuously required additional funds during the twenties to keep pace with the increasing demand for telephone service. These funds were provided principally through the sale of equity securities and bonds by the American Telephone and Telegraph Company. The major part of the financial requirements of Associated Bell companies was met by advances from the parent company, most of which were subsequently converted into the capital stock of these companies. The large volume of telephone issues in 1930 has already been mentioned. During that year, telephone companies practically maintained the level of property expenditures of 1929 and built up cash and marketable securities by nearly $350 million. This building up of liquid resources was exceptional compared to previous and subsequent years. In this industry security retirements were insignificant for every year in the period except 1936, when they approached half a billion dollars.

Electric Light and Power Companies

An estimate of the volume of "new capital" issues of electric light and power companies from 1925 to 1940 has been made by the statistical department of the trade journal, *Electrical World*. The estimated volume varied as follows: [9]

(millions)

1925	$260	1930	$894	1935	$27
1926	410	1931	424	1936	60
1927	830	1932	166	1937	82
1928	600	1933	7	1938	123
1929	624	1934	2	1939	16
				1940	92

The volume of issues in 1930, as in the case of telephone companies, was large in view of the decline in business activity.[10] Also like most other public utility securities, these issues were sold in surprisingly small amounts during the thirties, even during the latter half of the decade. This is in decided contrast to our manufacturing sample.

Railroads

The only readily available data on the security sales of railroads are for all classes of steam railways as a group less all security retirements and repayments.[11] From these data, however, it can be seen that the importance of new funds obtained from the securities market has decreased consistently over the period of study. All steam railroads obtained more new funds from the capital markets in the five-year period 1921–25 than during the succeeding five years. The large volume of new funds obtained during the early twenties was probably due to large property expenditures, replacing the property used up during World War I. The decline in security market financing by railroads over the two decades was not only absolute but also relative to alternative sources of funds available to railroads.

After 1930, the unprofitable position of many railroads was an obstacle to public security sales. Substantial funds were provided by the Reconstruction Finance Corporation to assist the industry. From February 2, 1932 to March 31, 1941 the RFC disbursed $807 million to 89 railroads. Sixty percent of this sum was still outstanding at the end of the period cited.[12]

This decline in the amount of funds obtained by railroads from the capital market has been of great significance to institutional investors; in earlier days railroad bonds were regarded as among the prime investment securities for institutions. It is estimated that even in the early thirties more than 40 percent of the outstanding railroad bonds were held by insurance companies, savings banks, educational and charitable institutions, and philanthropic foundations.[13] In addition, railroad bonds made up an important part of the investment portfolios of commercial banks.

EXTERNAL AND INTERNAL FINANCING OF CORPORATE EXPANSION

The several sources of funds to finance business expansion may be classified as external and internal. Executives of large corporations exercise a degree of choice in making use of these sources, depending upon their evaluation of current conditions and their expectations as to the future. Generalizations as to long-run changes in corporate financing preferences need to be made with great care. Over the short period between the two World Wars we find the behavior of large corporations strongly influenced by cyclical conditions.

Financing of Fixed Capital Expenditures

Tables 13 and 14 show the fluctuation in fixed capital expenditures (outlays on fixed property and investment in subsidiaries and affiliates) over the period studied. In the first decade, such expenditures for the manufacturing sample amounted to more than a billion dollars in four of the years; in the second decade, this figure was reached only in 1930, when expansions undertaken during the boom years were completed, and in the expansion year of 1937. For the trade sample, fixed capital expenditures varied from a low of $9 million in 1921 to a high of $110 million in 1929. The average annual volume for manufacturing was $888 million in the twenties, $736 million in the thirties; for trade it was $45 million in the twenties and $33 million in the thirties.

Along with this decreased use of funds for fixed capital expenditures we find a decrease in total security sales. Only in 1929 did total security sales of manufacturing amount to more than a billion dollars; in the thirties a low of $45 million occurred in 1933 and a high of more than half a billion in 1937. In this expansion year of 1937 the ratio of security sales to fixed capital expenditures was notably high, 43 percent (equal to the ratio in 1927). In 1938 the ratio was still higher, 58 percent, a figure topped by only two years of the two decades, in 1929 with 72 percent and in 1921 with 61 percent.

For trade, 1929 was the year in which greatest resort was made to the securities market, when $99 million were obtained from this source. In the thirties the year 1936 had security sales of $79 million, close to the sales of 1928 and vastly greater than the sales of any of the earlier years of the twenties. The influence of business cycles is clear for both samples, regarding both the level of capital expenditures and the resort to the securities market.

While total security sales indicate the extent of the use of the capital market by business, the amount of new funds secured through such sales is a more important indication of the extent of security financing. Ratios of security sales and of new funds to total funds retained from operations varied greatly over the period for the manufacturing groups:

Table 13—Security Financing and Internal Financing of Fixed Capital Expenditures of a Sample of Large Manufacturing Corporations, 1921–39[a] (*dollar figures in millions*)

	DOLLAR VOLUME					PERCENT OF FIXED CAPITAL EXPENDITURES			
Year[b]	*Total Security Sales*	*New Funds from Security Sales*	*Total Funds Retained from Operations*	*Undistributed Earnings*	*Fixed Capital Expenditures*	*Total Security Sales*	*New Funds from Security Sales*	*Total Funds Retained from Operations*	*Undistributed Earnings*
1921 (T)	$344	$224	$142	$−179	$566	61%	40%	25%	−32 %
1922	222	60	488	200	431	52	14	113	46
1923 (P)	402	297	745	347	865	46	34	86	40
1924 (T)	136	35	772	332	558	24	6	138	59
1925	314	42	1,053	546	806	39	5	131	68
1926 (P)	335	188	1,107	506	1,015	33	19	109	50
1927 (T)	447	148	912	245	1,034	43	14	88	24
1928	265	83	1,246	532	1,001	26	8	124	53
1929 (P)	1,239	564	1,459	599	1,717	72	33	85	35
1930	340	183	717	−13	1,291	26	14	56	−1
1931	110	−44	220	−484	589	19	−7	37	−82
1932 (T)	139	−97	35	−480	416	33	−23	8	−115
1933	45	−119	524	−79	395	11	−30	133	−20
1934	100	−77	610	19	509	20	−15	120	4
1935	112	−151	862	258	626	18	−24	138	41
1936	244	−17	984	313	835	29	−2	118	37
1937 (P)	541	363	1,115	364	1,249	43	29	89	29
1938 (T)	423	352	688	61	735	58	48	94	8
1939	143	41	974	275	716	20	6	136	38
				AVERAGE ANNUAL VOLUME					
1921–39	311	109	771	177	808	38	13	95	22
1921–29	412	182	880	348	888	46	20	99	39
1930–39	220	43	673	23	736	30	6	91	3
'30–33	159	−19	374	−264	673	24	−3	56	−39
'34–39	261	85	872	275	778	34	11	112	35

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[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years. The security sales and new funds in this table differ from those in Table 12, because of the omission of 4 corporations for which complete data on fixed property expenditures and total funds from operations were not available.

[b] For peaks and troughs, see Table 5, footnote b.

Table 14—SECURITY FINANCING AND INTERNAL FINANCING OF FIXED CAPITAL EXPENDITURES OF A SAMPLE OF LARGE TRADE CORPORATIONS, 1921–39[a] (*dollar figures in millions*)

Year[b]	DOLLAR VOLUME *Total Security Sales*	 *New Funds from Security Sales*	 *Total Funds Retained from Operations*	 *Undistributed Earnings*	 *Fixed Capital Expenditures*	PERCENT OF FIXED CAPITAL EXPENDITURES *Total Security Sales*	 *New Funds from Security Sales*	 *Total Funds Retained from Operations*	 *Undistributed Earnings*
1921 (T)	$7	$−14	$−4	$−16	$9	78%	−156%	−44%	−178%
1922	4	−18	36	30	18	22	−100	200	167
1923 (P)	3	−15	52	46	24	13	−63	217	192
1924 (T)	3	−10	56	47	24	13	−42	233	196
1925	9	5	64	55	43	21	12	149	128
1926 (P)	13	7	63	53	33	39	21	191	161
1927 (T)	16	−1	71	59	41	39	−2	173	144
1928	80	79	91	74	107	75	74	85	69
1929 (P)	99	98	89	66	110	90	89	81	60
1930	29	23	43	15	64	45	36	67	23
1931	3	−14	51	15	35	9	−40	146	43
1932 (T)	1	−8	22	−9	25	4	−32	88	−36
1933	1	−15	72	45	12	8	−125	600	375
1934	5	−3	67	41	25	20	−12	268	164
1935	11	−19	73	43	26	42	−73	281	165
1936	79	73	42	12	31	255	235	135	39
1937 (P)	7	−1	48	15	41	17	−2	117	37
1938 (T)	3	2	51	22	31	10	6	165	71
1939	12	5	80	47	44	27	11	182	107
				AVERAGE ANNUAL VOLUME					
1921–39	20	9	56	35	39	51	23	144	90
1921–29	26	15	58	46	45	58	33	129	102
1930–39	15	4	55	25	33	45	12	167	76
'30–33	9	−4	47	17	34	26	−12	138	50
'34–39	20	9	60	30	33	60	27	182	91

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[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years. The security sales and new funds in this table differ from those in Table 12, because of the omission of 1 corporation for which complete data on fixed property expenditures and total funds from operations were not available.

[b] For peaks and troughs, see Table 5, footnote b.

	Security Sales as a % of Total Funds from Operations [a]	*New Funds as a % of Total Funds from Operations* [a]
Tobacco	100%	31%
Textiles	68	−9
Rubber	65	19
Iron and steel	64	17
Meat packing	59	−28
Chemicals	57	45
Building materials and equipment	41	26
Petroleum	36	19
Machinery	32	−2
Food other than meat packing	22	−9
Automobiles and trucks	16	−7

[a] In computing these ratios it was necessary to exclude some corporations for which data on total funds retained from operations were missing. Negative percentages indicate net security retirements as a percent of total funds from operations.

The high ratios of security sales to funds retained from operations for the industries on the top of the list are due more to the low level of undistributed earnings than to the high level of security sales. As profits declined, there was naturally a decline in the volume of internal financing available. In the twenties, the fixed capital expenditures of the manufacturing sample were practically matched by total funds retained from operations. In the thirties, such funds fell short of financing expenditures by half a billion dollars.

In spite of the decline in security sales in the second decade, 1938 was notable as providing the highest percentage of new funds to fixed capital expenditures of any year in the two decades (48 percent) while the ratio for 1937 (29 percent) was exceeded only by three years in the first decade.

It has been pointed out that for trade the security sales and new funds were concentrated in three years. In trade as in manufacturing a year in the late thirties brought renewed importance to new funds as a source of corporate expansion. In 1936 new funds from security sales amounted to the highest percentage of fixed capital expenditures (235 percent) for any year in the two decades. In the next highest year, 1929, new funds amounted only to 89 percent of fixed capital expenditures.

Compared with undistributed earnings, one component of total funds from operations, new funds from security sales declined much less drastically as a source of funds during the two decades studied. Although in manufacturing new funds amounted to almost

62 percent of undistributed earnings over the 19 years as a whole, the average annual volume of new funds fell from $182 million in the twenties to $43 million in the thirties while the volume of undistributed earnings fell from $348 million to $23 million. In the twenties new funds amounted only to 52 percent of undistributed earnings while in the thirties new funds were 187 percent of undistributed earnings. Thus while the use of the capital market declined in the thirties, large manufacturing corporations found new funds from the capital market much more important in the thirties than in the twenties.

Data covering the trade sample present a somewhat different picture of the relative importance of new funds from security sales and total funds from operations. Over the entire period new funds were but 26 percent of undistributed earnings. In contrast to manufacturing, new funds were a more important source of funds relative to undistributed earnings in the twenties (33 percent) than in the thirties (16 percent).

Alternative Types of External Financing

Decisions of corporation executives to utilize one or another type of external financing appear to be determined by a variety of factors. The cyclical influence has already been mentioned. Others include expectations of future profits and future dividend payments, interest rates on loans, investor preference, reluctance to incur fixed indebtedness, and costs of floating different types of securities.

At a given time corporations may prefer equity capital financing (sale of stocks), long-term debt (bonds through the capital market and term loans from commercial banks, insurance companies and government agencies) or short-term debt. That is to say, several choices may be exercised in securing funds from investors and other choices in securing funds from lending agencies.

For a short period in the twenties it looked as though large manufacturing corporations were tending to substitute equity for debt financing. From Table 15 it can be seen that the manufacturing sample utilized part of the funds from the security market to reduce the volume of debt in the first decade. Nearly $2 billion of new funds were obtained from stock sales while bond outstandings were reduced by more than $82 million and short-term debt by $625 million. However, this tendency to shift from debt to equity did not persist over the two decades. Only in the late twenties, a period of extremely favorable stock prices and great ease in selling securities, did the volume of stock sales increase substantially relative to bond sales, and only in 1929 were stock sales notably greater than bond sales. From 1922 to 1927, although stock prices were rising faster than bond prices, the annual volume of bond sales increased more than the annual volume of stock sales. In 1925–29 the manufacturing sample sold bonds of $722 million and common stock of $659 million.

Table 15—LONG-TERM DEBT, EQUITY, AND CURRENT FINANCING OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1921–39[a] (*in millions*)

	MANUFACTURING			TRADE		
Year[b]	*New Funds from Sale of*		*Increases in Short-Term Debt*	*New Funds from Sale of*		*Increases in Short-Term Debt*
	Stocks	Bonds[c]		Stocks	Bonds	
1921 (T)	$126.7	$146.0	$−645.6	$1.8	$−15.8	$−28.8
1922	159.9	−107.7	−110.1	.4	−18.7	−15.0
1923 (P)	265.8	32.2	124.0	−9.4	−16.1	7.3
1924 (T)	60.6	−45.1	−99.4	−10.9	1.7	2.8
1925	115.2	2.7	148.3	3.2	1.7	18.0
1926 (P)	196.1	87.1	6.2	2.9	3.7	.2
1927 (T)	−34.7	202.8	−220.6	−1.9	1.6	14.6
1928	107.1	−19.6	159.8	76.4	2.8	24.3
1929 (P)	957.0	−380.8	11.9	88.5	9.1	16.1
1930	136.1	79.4	−350.2	16.8	6.4	−27.3
1931	105.3	−40.6	−384.2	−13.8	.2	−13.6
1932 (T)	−106.2	−8.3	−101.4	−6.2	−1.6	−5.2
1933	13.4	−155.7	138.8	−11.8	−2.6	23.7
1934	66.1	−118.0	166.4	1.1	−6.1	−9.2
1935	−41.6	−122.4	253.6	−1.6	−16.9	13.5
1936	.8	−62.7	270.5	74.0	−1.3	24.7
1937 (P)	247.6	173.9	123.2	2.4	7.7	−4.2
1938 (T)	11.4	337.0	−325.9	2.0	.2	6.7
1939	14.2	24.0	220.3	7.4	−2.6	38.7
Period			TOTAL			
1921–39	2,400.8	24.2	−614.4	221.3	−46.6	87.3
1921–29	1,953.7	−82.4	−625.5	151.0	−30.0	39.5
1930–39	447.1	106.6	11.1	70.3	−16.6	47.8
'30–33	148.6	−125.2	−697.0	−15.0	2.4	−22.4
'34–39	298.5	231.8	708.1	85.3	−19.0	70.2

[a] See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

[b] For peaks and troughs, see Table 5, footnote b.

[c] Mainly bonds.

In the early thirties few securities of any kind were sold but a considerable volume of long-term debt was retired. After 1933 short-term debt increased relative to long-term debt and equity capital while long-term debt was increasing relative to common and preferred stock and to total assets. Only in 1936, when stock prices shot up 40 percent, were stock sales again large relative to bond sales.

Absolutely, over the five years prior to the outbreak of World War II, short-term debt for the manufacturing corporations rose by over $700 million while bond sales increased by about $230 million and stock sales by about $300 million.

The increase in manufacturing debt in the last years of the thirties was in part due to the rise of term loans.[14] At the end of 1939, the 84 manufacturing corporations had outstanding term loans of about $200 million. Petroleum companies accounted for a large part of the dollar volume of term loans due both to commercial banks and insurance companies.

The National Bureau's estimate of all term loans outstanding shows a consistent rise in volume from 1933 to 1939. The manufacturing sample, however, took advantage of the favorable markets of 1937 to sell securities and to retire a considerable amount of term loan indebtedness.

In contrast to manufacturing, large trade corporations showed a tendency to rely more on common stock than on debt and preferred stock financing. Table 15 shows that funds from the sale of stock were nearly four times as great as the increase in short-term debt in the twenties. Part of these funds was used to decrease outstanding long-term debt by $30 million. In the thirties, trade concerns had only a modest increase in short-term debt while long-term debt continued to be retired. For the two decades as a whole, however, trade showed a slight decrease in common stock and a considerable decrease in long-term debt and preferred stock relative to total assets because of the large increase in surplus.

Telephone companies rely much more heavily on the sale of capital stock than on bonds to finance expansions. In 1921–39, the Bell Telephone System sold bonds totalling $1.7 billion while retiring bonds to the amount of $1.2 billion. During the same years, Bell sold capital stock of $1.6 billion.

Over the period studied all steam railroad companies obtained $1.8 billion of new funds from the securities market, $1.5 billion from bond sales and the remainder, only $.3 billion, from issues of capital stock. Thus it is clear that railroads have not been shifting from debt to equity financing.

Estimates of the breakdown of security sales of electric light and power companies, by type of security, are available only for the period 1933–37: [15]

	Long-Term Debt	*Capital Stock*
	(millions)	
1933	$5	$0
1934	11	0
1935	11	0
1936	52	3
1937	105	1
TOTAL	$184	$4

There is some evidence that bond sales were more important than capital stock sales also in earlier years. The long-term debt of electric light and power operating companies increased about $500 million a year in 1922–27. Smaller increases occurred in 1928–32.[16]

The Securities and Exchange Commission has made a study of changes in relative costs of selling bonds and preferred stock issues of less than $5 million in two periods, 1925–29 and 1935–38. In the first period the cost of floating bonds was 6 percent for every hundred dollars secured while in the second period the cost had declined to 4.8 percent. For preferred stock, the cost increased from 7.8 percent to more than 10 percent.[17]

In the first period, 1925–29, our manufacturing sample retired more bonds and preferred stock than they sold, while in the second period, although they retired more preferred stock than they sold, they sold more bonds than they retired.

The Commission has also compiled data on the relative costs of floating bonds, preferred stock and common stock for three years, 1938, 1939, and 1940. Cost relationships were found to be generally similar in the three years. In 1940, the cost of bond sales was 2.4 percent, of preferred stock 5.7 percent and of common stock 9.2 percent, for each hundred dollars secured from investors.[18]

APPENDICES
AND
FOOTNOTES

A

COVERAGE OF MANUFACTURING AND TRADE SAMPLE

THE 84 LARGE MANUFACTURING and 27 large trade corporations which made up our manufacturing and trade samples are given below. Balance sheet data and/or sales data were missing for some corporations in earlier years. A listing of these corporations and the years for which data were not available is also given.

	Total Assets		*Net Sales*	
Name of Company	1921	1939	1921	1939
	(in millions)		(in millions)	
MANUFACTURING				
Automobiles and Trucks				
Chrysler Corporation	[a]	$222	[a]	$550
Dodge Bros., Inc.	$80 [b]	[a]	$141 [b]	[a]
Maxwell Motor Corp.	63	[a]	46 [c]	[a]
General Motors Corp.	474	1,308	304	1,377
Hudson Motor Car Co.	15	30	[d]	58
Mack Trucks, Inc.	29	43	25	36
Packard Motor Car Co.	59	53	31	76
White Motor Co.	35	23	30	24
Yellow Truck & Coach Mfg. Co.	11 [c]	49	5	59
Building Materials and Equipment				
American Radiator and Standard Sanitary Corp.	[e]	125	[e]	80
American Radiator Co.	33	[e]	79 [b]	[e]
Standard Sanitary Mfg. Co.	26	[e]	38	[e]
Certain-Teed Products Corp.	13	16	[d]	16
Crane Co.	66	109	[d]	88
Johns-Manville Corp.	20	54	26	54
Lone Star Cement Corp.	[f]	47	[f]	21
International Cement Corp.	16	[f]	9	[f]
Pittsburgh Plate Glass Co.	65	124	[d]	83
United States Gypsum Co.	16	65	[d]	43
Yale & Towne Mfg. Co.	18	21	[d]	17
Chemicals				
Air Reduction Co., Inc.	10	43	5	28
Allied Chemical & Dye Co.	204	237	[d]	156
Columbian Carbon Co.	9	31	7 [c]	15
DuPont (E. I.) de Nemours & Co.	248	731	55	299
Mathieson Alkali Works, Inc.	12	24	[d]	11
Monsanto Chemical Co.	7	55	4	43
Union Carbide & Carbon Corp.	200	337	[d]	170

Name of Company	*Total Assets* 1921 (in millions)	*Total Assets* 1939 (in millions)	*Net Sales* 1921 (in millions)	*Net Sales* 1939 (in millions)
MANUFACTURING—*Continued*				
Food (other than meat packing)				
Corn Products Refining Co.	134	115	49	56
General Baking Co.	22	26	[d]	39
Hershey Chocolate Corp.	43	23	27	40
Quaker Oats Co.	40	58	[d]	61
Ward Baking Co.	27	28	[d]	32
Wrigley (Wm.), Jr., Co.	30	60	[d]	35
Iron and Steel				
American Rolling Mill Co.	45	144	12	95
Bethlehem Steel Corp.	359	733	148	414
Crucible Steel Co. of America	114	115	[d]	48
Inland Steel Co.	61	167	20	115
Jones & Laughlin Steel Corp.	174[g]	231	72[g]	113
United States Steel Corp.	2,338	1,754	753	904
Wheeling Steel Corp.	88	123	28	86
Youngstown Sheet & Tube Co.	82	244	39	117
Machinery				
Allis-Chalmers Mfg. Co.	60	109	25	74
American Laundry Machinery Co.	12	25	[d]	6
American Locomotive Co.	86	56	36	22
American Steel Foundries	50	34	26	19
Baldwin Locomotive Works	80	61	50	33
Midvale Company	16[h]	[h]	6[h]	[h]
Case (J. I.) Company	35	42	17	21
Chicago Pneumatic Tool Co.	19	16	[d]	12
Fairbanks, Morse & Co.	26	32	17	24
General Electric Co.	339	414	221	305
Ingersoll-Rand Co.	33	43	[d]	31
International Harvester Co.	264	397	116	267
National Cash Register Co.	30	57	27	37
Remington Rand, Inc.	[i]	44	[i]	44
Remington Typewriter Co.	31	[i]	[d]	[i]
Underwood Elliott Fisher Co.	[j]	26	[j]	24
Elliott Fisher Co.	[d]	[j]	[d]	[j]
Underwood Typewriter Co.	26	[j]	[d]	[j]
Meat Packing				
Armour and Company	481	302	600	715
Cudahy Packing Co.	62	68	174	202
Swift and Company	362	305	800	757
Wilson Company, Inc.	102	88	[d]	273
Petroleum				
Atlantic Refining Co.	111	203	105	127
Continental Oil Co. (Del.)	[k]	128	[k]	81
Marland Oil Co.	57	[k]	9	[k]
Gulf Oil Corp.	192	521	128	277
Pure Oil Company	146	179	61	94
Shell Union Oil Corp.	216[g]	401	49[g]	248
Socony-Vacuum Oil Co., Inc.	[m]	926	[m]	496
Standard Oil Co. of N. Y.	333	[m]	[d]	[m]
Vacuum Oil Co.	110	[m]	[d]	[m]

Name of Company	*Total Assets* 1921	*Total Assets* 1939	*Net Sales* 1921	*Net Sales* 1939
	(in millions)		(in millions)	
MANUFACTURING—*Continued*				
Standard Oil Co. of California (Del.)	[n]	629	[n]	178
Standard Oil Co. of Calif. (Calif.)	277	[n]	[d]	[n]
Pacific Oil Co.	68	[n]	31	[n]
Standard Oil (Indiana)	306	723	[d]	44
Standard Oil Co. (New Jersey)	1,116	2,035	443	934
Sun Oil Company	20	146	[d]	131
Texas Corp.	289	661	[d]	365
Tide Water Associated Oil Co.	[o]	204	[o]	132
Associated Oil Co.	78	[o]	50	[o]
Tide Water Oil Co.	90	[o]	46	[o]
Union Oil Co. of Calif.	105	187	59	76
Rubber				
Firestone Tire & Rubber Co.	66	174	66	160
General Tire & Rubber Co.	2	16	6	24
Goodrich (B. F.) Company	89	133	87	142
Goodyear Tire & Rubber Co.	168	192	99	200
Lee Rubber & Tire Corp.	5	11	7	15
United States Rubber Co.	314	182	165	195
Textiles				
American Mfg. Co.	23	12	12	6
American Woolen Co.	132	71	[d]	65
Arlington Mills	25	15	18	14
Cluett, Peabody & Co., Inc	34	16	26	23
Mt. Vernon-Woodberry Mills, Inc.	15	13	6	9
Nashua Manufacturing Co.	24	14	13	11
Pacific Mills	47	31	43	46
Tobacco				
American Tobacco Co.	190	292	151	262
Liggett & Myers Tobacco Co.	137	181	152	233
Lorillard (P.) Co.	84	58	84	80
Reynolds (R. J.) Tobacco Co.	106	172	188	277
TRADE				
Chain Grocery Stores				
First National Stores, Inc.	[p]	31	[p]	131
The Ginter Company	[d]	[p]	10	[p]
John T. Connor Co.	2	[p]	10	[p]
Grand Union Co.	17	7	22	37
Great Atlantic & Pacific Tea Co. of America	39	196	202	990
Kroger Grocery & Baking Co., Inc.	10	54	45	243
Chain Variety Stores				
Grant (W. T.) Company	3	42	13	104
Kresge (S. S.) Company	31	130	56	154
Kress (S. H.) Company	23	75	29	85
Penney (J. C.) Company	11	91	47	282
Woolworth (F. W.) Company	103	244	148	319

Name of Company	*Total Assets* (in millions)		*Net Sales* (in millions)	
	1921	1939	1921	1939
TRADE—*Continued*				
Department Stores				
(14 unidentified large companies)				
Company No. 1	2	5	5	7
" " 2	6	10	11	15
" " 3	2	3	10	8
" " 4	2	2	4	3
" " 5	3	6	8	10
" " 6	2	1	2	2
" " 7	1	1	2	2
" " 8	1	1	2	2
" " 9	17	22	26	25
" " 10	2	2	2	2
" " 11	5	3	7	7
" " 12	1	2	2	2
" " 13	1	2	3	3
" " 14	2	4	3	5
Mail-Order Houses				
Montgomery Ward & Co., Inc.	49	252	69	475
Sears, Roebuck & Co.	185	324	164	617
Miscellaneous Chain Stores				
Barker Bros. Corp.	6	10	10	12
Melville Shoe Corp.	2	18	5	38

CORPORATIONS EXCLUDED BECAUSE OF LACK OF BALANCE SHEET OR INCOME DATA

Name of Company	*Years in Which No Sales Data Were Available*	*Years in Which No Balance Sheet Data Were Available*
MANUFACTURING		
Automobiles and Trucks		
Chrysler Corporation		
Dodge Bros., Inc.	1920–22	1920–22
Maxwell Motor Corp.	1920–21	1920
Hudson Motor Car Co.	1920–28	1920
Yellow Truck & Coach Mfg. Co.	1920–21	1920–21
Building Materials and Equipment		
American Radiator and Standard Sanitary Corp.		
American Radiator Co.	1920–26	
Standard Sanitary Mfg. Co.	1920	
Certain-Teed Products Corp.	1920–32	
Crane Co.	1920–32	
Pittsburgh Plate Glass Co.	1920–33	
United States Gypsum Co.	1920–33	
Yale & Towne Mfg. Co.	1920–27	

Name of Company	*Years in Which No Sales Data Were Available*	*Years in Which No Balance Sheet Data Were Available*
MANUFACTURING—*Continued*		
Chemicals		
Allied Chemical & Dye Co.	1920–33	
Columbian Carbon Co.	1920–21	1920
Mathieson Alkali Works, Inc.	1920–33	
Union Carbide & Carbon Corp.	1920–33	
Food (other than meat packing)		
General Baking Co.	1920–33	
Hershey Chocolate Corp.	1920, 1932–33	1920
Quaker Oats Co.	1920–36	
Ward Baking Co.	1920–33	
Wrigley (Wm.), Jr., Co.	1921–33	
Iron and Steel		
Crucible Steel Co. of America	1920–33	
Jones & Laughlin Steel Corp.	1920–21	1920–21
Youngstown Sheet & Tube Co.	1920	1920
Machinery		
American Laundry Machinery Co.	1920–33	
American Locomotive Co.	1926–33	
Baldwin Locomotive Works		
Midvale Company	1920–22, 1929	1920–22
Chicago Pneumatic Tool Co.	1920–33	
Ingersoll-Rand Co.	1920–33	
National Cash Register Co.	1920	1920
Remington Rand, Inc.		
Remington Typewriter Co.	1920–27	
Underwood Elliott Fisher Co.	1928–33	
Elliott Fisher Co.	1920–27	1920–25
Underwood Typewriter Co.	1920–27	
Meat Packing		
Wilson Company, Inc.	1920–24	
Petroleum		
Shell Union Oil Corp.	1920–21	1920–21
Socony-Vacuum Oil Co., Inc.	1930–32	
Standard Oil Co. of N. Y.	1920–29	
Vacuum Oil Co.	1920–29	
Standard Oil Co. of California (Del.)	1926–33	
Standard Oil Co. of Calif. (Calif.)	1920–25	
Pacific Oil Co.	1920	1920
Standard Oil (Indiana)	1920–29	
Sun Oil Company	1920–24	1920
Texas Corp.	1920–32	
Textiles		
American Woolen Co.	1920–33	
Cluett, Peabody & Co., Inc.	1930–33	
TRADE		
Chain Grocery Stores		
First National Stores, Inc.		
The Ginter Company	1920–21	1920–21

B

THE SOURCE AND APPLICATION OF FUNDS ANALYSIS

INTRODUCTION

AMONG THE METHODS OF ANALYSIS used by accountants to study the financial position of business enterprises is one which deals with their sources of funds and the uses to which such funds are put. It is often termed "the source and application of funds analysis" in current accounting literature. Its purpose is to trace the flow of funds received and disbursed by business concerns in so far as such flows of funds affect major balance-sheet items between two given dates.

As used in this connection, the term "funds" may have different meanings, depending upon the use to which the analysis is to be put. Usually it represents cash or its equivalent in financial transactions. Thus, undistributed earnings provide funds in the sense that they increase the concern's cash or its receivables, which would in this case be considered a cash equivalent. Securities issued to purchase plant or equipment may also be considered as providing funds, although no cash or even current assets are involved in the transaction. On the other hand, a balance-sheet change occasioned by the revaluation of land or of an intangible would not indicate a source or application of funds, since the increase or decrease in the value of the land or of the intangible would not represent a receipt or expenditure of cash or a cash equivalent. Nor does the analysis necessarily cover all receipts and expenditures of cash during the period under consideration, for if such were the case, it would be equivalent to a cash book. Current cash operating expenses (wages for example) are excluded from the analysis; but other expenses which do not result in the receipt or disbursement of cash (accrued depreciation, for example) are included. Such non-cash charges, when earned, indicate available funds in the sense that they do not involve immediate outlays of cash.

THE BASIC ANALYSIS

The basic accounting analysis involved entails a tabulation of the changes in the principal asset and liability items of the balance sheet of a business enterprise between two given dates, say a fiscal year. For example:

BALANCE SHEET AS OF DECEMBER 31, 1938

Assets		*Liabilities*	
Current assets	$100	Current liabilities	$ 50
Property	100	Capital stock	100
		Surplus	50
Total	$200	Total	$200

BALANCE SHEET AS OF DECEMBER 31, 1939

Assets		*Liabilities*	
Current assets	$150	Current liabilities	$100
Property	200	Capital stock	150
		Surplus	100
Total	$350	Total	$350

In the example given, the sources of funds for the year were:

Increase in current liabilities	$ 50
Sales of capital stock	50
Increase in undistributed earnings (represented by an increase in surplus)	50
Total	$150

The uses or applications of funds included:

Increase in current assets	$ 50
Increase in property	100
Total	$150

In this case, increases in both current and fixed assets during the year required funds which were provided by incurring additional short-term debt (such as a bank loan), by the sale of additional equity securities, and by the return of a part or all of the year's earnings into the business. Needless to say, the asset items do not always require funds nor do the liability and proprietorship items always supply them. Funds for the liquidation of a current liability, such as a bank loan, may have been provided by a drain on cash, a collection of an account receivable, or the sale of a marketable security previously held as an investment by the concern.

✓ The fineness of the classification of the balance-sheet items to be considered depends of course upon the purpose for which the analysis is being used. A student interested in bank loans would break up the current liability classification at least into notes payable to banks and other current liabilities. Another student, interested in inventory changes, would subdivide current assets into cash, receivables and inventory, and inventory, if possible, into the subclassifications of raw materials, goods in process, finished goods, and supplies.(Such classifications and subclassifications would of course have to depend on the availability of the data as well as on the purpose of the study.)

Adjustments to the Basic Analysis

As has been suggested above, the analysis involves more than a study of all major balance-sheet changes. Adjustments should be made for all such changes which do not involve a transfer of "funds" in our sense of the term. Some of these changes may have been the result of charges or credits to the income or surplus accounts which did not involve the expenditure or receipt of cash or its equivalent. The earned depreciation written off per year is a case in point. If, in our example, the property account on the asset side of the balance sheet was net of a reserve for depreciation and this reserve had been increased by $25 during the period because that amount had been charged to profit and loss for accrued depreciation, our calculation of total funds received and used would have been understated by $25. If, however, the annual depreciation charge had been thought of as an indicator of $25 available from operations, and if such a charge had been deducted from the reserve for depreciation, so that the use of funds expended for property would have increased, then a more accurate estimate of fixed property expenditures would have been derived. Other non-cash charges, such as additions to other valuation reserves, writedowns of assets, losses on the sale of capital assets, bond discount and stock dividends, should be treated similarly.

If, on the other hand, property had been written up by $25 during the period under consideration, our calculations of the total flow of funds would have been overstated by that much. In that case the property account in the latter year should have been written down by the amount of the writeup and the analysis applied using this adjusted figure. Other non-cash credits, such as profits on the sale of capital assets and writeups of intangibles, should be similarly treated.

However, some of the balance-sheet changes for which adjustments must be made are independent of non-cash charges or credits to the income or surplus accounts (for example, a bookkeeping shift of cash as a current asset to cash in the hands of trustees for the future retirement of bonds, which may be considered in another asset classification in the balance sheet). On the assumption that this is the only balance-sheet change for the period under review, current assets will have decreased if the adjustment is not made, indicating a source of funds; and other assets will have increased, indicating a use of funds. In reality, however, no flow of funds has occurred.

This type of adjustment takes on unusual importance in the case of consolidations and mergers. When consolidated balance sheets are first drawn up, the subsidiary having been previously carried on the books as an investment, it is necessary to enter adjustments for transfers of amounts from investments to other accounts such as property, inventory, cash and long-term debt, which are derived from the company newly consolidated. Otherwise flows of funds will be indicated where none have occurred. For a merger of two relatively large companies, it is necessary to build up an estimated consolidated balance sheet for the year prior to the merger. In such a case the estimated balance sheet should be used to compute the sources and uses of funds for the year ending at the date of publication of the first consolidated balance sheet. Such consolidations and acquisitions impair somewhat the significance of quantitative comparisons of total sources and uses of funds for different periods. Comparisons of this nature are made more meaningful if the source and application of funds analysis is applied to both concerns involved in years prior to the merger. Acquisitions of small concerns will have little quantitative importance in any case, compared to the larger changes already computed.

FOOTNOTES

CHAPTER ONE

1 Securities and Exchange Commission, *Cost of Flotation for Registered Securities, 1938–1939* (Washington, 1941) and Release No. 572 of the Statistical Series (June 6, 1941).

2 The large manufacturing and trade corporations included in the study are listed in Appendix A along with their total assets and net sales at the beginning and at the end of the period studied.

3 These tabulations were prepared under the supervision of Arthur B. Hersey of the Division of Research and Statistics, who presented a summary of his studies before the American Statistical Association in December 1940. See Arthur B. Hersey, "Sources and Uses of Corporation Funds," *Journal of the American Statistical Association* (June 1941).

4 Most of this source material is available in the Marvyn Scudder Financial Library of Columbia University.

5 See Temporary National Economic Committee, 76th Congress, 1st Session, *Hearings Pursuant to Public Resolution No. 113,* "Savings and Investment," Part 9 (Washington, 1940) pp. 3561-76, 4019-26.

6 Particularly its annual publication, *Statistics of Railways in the United States.*

7 Annual data on the sources and uses of funds of the Bell Telephone System were secured directly from the Federal Communications Commission. Data for groups of years can be found in the Commission's *Report on the Investigation of the Telephone Industry in the United States* (Washington, 1939) p. 425.

8 Edison Electric Institute, *The Electric Light and Power Industry in the United States.*

9 The ratio data utilized in this study pertain to a given point of time, for example, December 31, 1920. The sources and uses of funds data, on the other hand, refer to the differences in balance-sheet items between two given points of time, for example, between December 31, 1920 and December 31, 1921. For this reason when we speak of ratios over the entire period studied—December 31, 1920 to December 31, 1939—we speak of the period 1920–39; and when we speak of sources and uses of funds over the entire period, we speak of 1921–39.

10 *Statistical Abstract of the United States, 1940,* p. 394.

11 *Annual Report to Stockholders* of the American Telephone and Telegraph Company.

12 Unfortunately, no accurate comparison of the coverage of the mail-order sales of our sample with that of total mail-order sales as re-

ported by the Census can be made because the Census reports mail-order sales only and large mail-order houses in their annual reports publish mail-order combined with retail store sales. Assuming that mail-order and retail store sales are roughly equal, our coverage in 1935 was approximately 90 percent.

13 Bureau of the Census, "Retail Distribution," *Census of Business, 1935,* Vol. I (1937) p. 10.

14 Value of product is "the selling value *at the factory or plant,* of all commodities produced (or, for some industries, receipts for work done) during the census year, whether sold, transferred to other plants, or in stock, and consequently, under normal conditions, the total value of products covers the cost of production (including overhead expenses) and profits." See Bureau of the Census, *Census of Manufactures, 1937,* Part I (1940) p. 8.

15 In the case of trade these figures are not strictly comparable because in the sales comparison our trade sample is compared to *retail* trade sales only, while in the asset comparison, it is compared to *total* trade assets.

16 The coverage of individual industries, in particular, should not be interpreted too rigidly. For example, in automobiles and trucks, although our sample was responsible for 52 percent of the sales of all business enterprises in 1937, it possessed only 40 percent of the total assets of corporations in the industry in 1933. Either a larger sales/total assets ratio in the case of large, profitable automobile companies than in the case of the rest of the industry, or the difference in time, may have been responsible for these, at first glance, inconsistent coverage figures.

17 In a sample of 745 large manufacturing corporations in 73 minor industrial groups, 93.5 percent of aggregate notes payable was due to banks. Thirty-two of the minor industrial groups had notes payable to banks exclusively; 33 had notes payable to banks and to suppliers; 6 had no notes payable; and 2 had notes payable to suppliers only. See National Bureau of Economic Research (Financial Research Program), *The Financial Structure of Incorporated Business: A Cross-Section View, 1937,* by Walter A. Chudson (ms. 1942). A similar conclusion concerning the relative importance of notes payable to banks and to others was reached by the author after an examination of a large number of individual corporation reports submitted to the Securities and Exchange Commission on Form 10K.

18 Moreover, when consolidated financial statements were first drawn up, the subsidiary having previously been carried on the books as an investment—for example, the change in reporting its foreign subsidiaries by Standard Oil of New Jersey in 1939—adjustments were made for the shifts in classification of balance-sheet items from the investment in subsidiaries account to such other accounts as property, inventory, and long-term debt.

19 These and the following statistics are computed from *Statistics of Income for 1937,* Part 2. For purposes of this study small corporations have been defined to include all corporations with total assets

under $500 thousand; medium-sized corporations, those with total assets between $500 thousand and $10 million; and large corporations, those with total assets over $10 million.

20 Since the breakdown between common stock and surplus is quite arbitrary and often misleading, it seems more realistic to consider these two items together. In many cases, for example, common stock is listed on the books at a purely nominal value, the premium paid for the stock above the nominal value having been credited to a surplus account. The privilege of issuing stock dividends, purely a bookkeeping transaction, may also change the relative proportions of common stock and surplus to total liabilities significantly. In spite of the effect of these bookkeeping practices on the relative magnitude of common stock and surplus in financial structure, it is probably true that the earned surplus of small corporations as a whole is less than that of medium-sized and large corporations. See W. L. Crum, *Corporate Size and Earning Power* (Harvard University Press, 1939) pp. 17-33.

CHAPTER TWO

1 Kuznets' estimate of the "flow of producers' durable commodities and business construction" in 1937 was $9.4 billion. National Bureau of Economic Research, Bulletin 74, *Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932–38,* by Simon Kuznets (June 25, 1939) p. 2.

2 "Estimated Expenditures for New Durable Goods, 1919–38," *Federal Reserve Bulletin* (September 1939) p. 732.

3 For the samples of manufacturing and trade companies, fixed property expenditures were calculated for each individual company by *adding* to the change in the net property account: (1) all ordinary charges to income for depreciation, depletion, and amortization applicable to the property account; (2) all extraordinary charges to income or surplus for writedowns, or losses on the disposal, of property; and (3) all decreases in property resulting from the reclassification of assets; and *subtracting* from the change in the net property account: (1) all extraordinary credits to income or surplus for write-ups, or profits on the disposal, of property; and (2) all increases in property resulting from reclassifications of assets and purchases of subsidiaries. Extraordinary expenditures, such as tooling expenses of automobile companies and blast furnace relinings, have been excluded because of lack of adequate data.

4 The estimates for total manufacturing are those of Lowell J. Chawner of the Department of Commerce. See "Capital Expenditures for Manufacturing Plant and Equipment—1915 to 1940," *Survey of Current Business* (March 1941) p. 10. Dun & Bradstreet estimates that "total expenditures for improvements and enlargements by manufacturing concerns" were $1.8 billion in 1937. See *Dun's Review* (July 1938). The estimates of the fixed property expenditures of our sample differ from those of Chawner and of Dun & Bradstreet in that our estimates contain expenditures on such natural resources as land, oil fields and mines, and are net of disposals of property.

5 *Iron Age* (January 6, 1938) p. 388.

6 Monsanto Chemical Co., *Annual Report to Stockholders for 1939,* p. 4, as cited in Oscar L. Altman, *Saving, Investment, and National Income,* TNEC Monograph No. 37 (Washington, 1941) p. 58.

7 Computed from Bureau of Internal Revenue, *Statistics of Income for 1937,* Part 2 (Washington, 1940) pp. 71, 77.

8 W. L. Crum, *Corporate Size and Earning Power* (Harvard University Press, 1939) pp. 62, 190.

9 *Annual Report to Stockholders* of Sears, Roebuck & Co. for the year ending December 31, 1939. It is important to note that the expenditures of Montgomery Ward on its retail distribution system were reflected in increases in the balance-sheet account "investments in subsidiaries" while those of Sears, Roebuck & Co. were reflected in increases in the "property" account. This contrast arises as a result of the different accounting methods used by the two companies in the expansion of their retail store systems. Whereas Montgomery Ward formed a subsidiary for the sole purpose of handling its retail store business, Sears, Roebuck & Co. did not. Therefore any interpretation of the relative expansion of these two large mail-order houses should be made from data on total fixed capital expenditures rather than on either of the two components, property expenditures or investments in subsidiaries and affiliates.

10 This trend toward less costly construction is discussed by Carl N. Schmalz, Controller of R. H. Stearns Department Store in Boston, in "Some Current Trends in Retailing," *Chain Store Age* (Administration Edition, April 1936) pp. 42 ff.

11 Since maintenance expenditures were excluded from the fixed property expenditures of other industries because of the lack of data, they have also been excluded from railroad property expenditures. Because of the technical character of the railroad industry and of specific rulings of the Interstate Commerce Commission, maintenance expenditures are of relatively greater importance in this industry than in manufacturing and trade. During the period 1921–39, for example, they amounted to over two and one-half times the amount expended on capitalized property.

12 Maintenance expenditures in 1937 were less than in any year of the twenties. Such expenditures were only $1.1 billion in 1937 as contrasted to $1.8 billion in 1929, and $2.1 billion in 1923.

13 M. G. Robinson, "Financing Public Utility Construction," *Stone & Webster Bulletin* (June 1938) p. 2.

14 The term "depreciation" as used hereafter embraces accruals to depreciation, depletion and amortization reserves, and a special item in the case of oil companies, intangible development costs (that is, costs of explorations for crude oil).

Revaluations include all writedowns and writeups of property to income, surplus, and capital reserves which were discernible in financial statements.

15 Ruth P. Mack, utilizing Securities and Exchange Commission data, has investigated the relationship between retirements and book depreciation, and retirements and property expenditures of 54 companies from 1932–38. She finds: (1) that retirements were consistently and quite considerably less than depreciation; and (2) that property is more likely to be retired in good years when money is being spent for improvements and replacements than it is during the tight-fisted days of depression. See *The Flow of Business Funds and Consumer Purchasing Power* (Columbia University Press, 1941) pp. 74-77.

16 Adjusted for such non-cash charges as stock dividends and asset revaluations.

17 Computed from National Bureau of Economic Research, *National Income and Capital Formation, 1919–35,* by Simon Kuznets (1937) p. 48; and by the same author, National Bureau Bulletin 74, p. 2.

18 As has been pointed out previously, the most important method of accounting for property "consumption" in the railroad industry is the maintenance charge. For "ways and structure," for example, the percentage of depreciation charges to cost of maintenance is extraordinarily low, between 1 and 2 percent. See National Bureau of Economic Research, *Capital Consumption and Adjustment,* by Solomon Fabricant (1938) Chapter 4.

19 This is somewhat less than Kuznets' estimate of the average ratio of net to gross business capital formation, excluding the net changes in business inventories, for 1919–35, of 21 percent. The Kuznets' estimates of capital consumption, which were prepared by Solomon Fabricant, exclude property revaluations. See *National Income and Capital Formation, 1919–35,* pp. 47-51.

20 A more meaningful ratio would be that of property expenditures to "value added," that is, value of product less cost of materials, supplies, containers, fuel, purchased electric energy, and contract work. Since comparable data on these two items for all of our samples are not available, sales data have been used instead of "value added."

21 Securities and Exchange Commission, *Statistics of American Listed Corporations,* Part I (Washington, 1940) p. 29.

22 Willard L. Thorp, "The Merger Movement," in *The Structure of Industry,* TNEC Monograph No. 27 (Washington, 1941) p. 233.

23 An earlier period of concentration which had striking similarities to the period 1925–29 was in 1897–1903. Some of the contemporary large corporations formed during this earlier period are International Harvester, Corn Products Refining, DuPont and United States Steel.

24 Federal Communications Commission, *Report on the Investigation of the Telephone Industry in the United States* (Washington, 1939) pp. 45-47,

CHAPTER THREE

1 Arthur Stone Dewing, *Financial Policy of Corporations* (New York, 1934) p. 465.

2 Data on trade and manufacturing corporations are from Bureau of Internal Revenue, *Statistics of Income for 1937,* pp. 93-94, 131-32; on railroads from Interstate Commerce Commission, *Statistics of Railways in the United States* for the year ended December 31, 1937, p. S-107; on electric light and power companies from the Bureau of the Census, "Electric Light and Power Industry," *Census of Electrical Industries, 1937* (Washington, 1939) p. 74; and on telephones from American Telephone and Telegraph Company, *Annual Report to Stockholders for 1937,* p. 16.

✓ 3 Analysis of annual financial data conceals, of course, many intra-year working capital requirements. Large inventories, or receivables held only during the summer months, would not be noticed in an analysis of year-end financial statistics. Nor would cash temporarily built up during the year prior to incurring capital expenditures be recorded on a year-end balance sheet.

4 These data were derived from annual balance sheet changes, after adjusting balance sheets for reported asset revaluations, indicated shifts in classification, and consolidations.

5 Data for this chart and all other insert charts are from National Bureau of Economic Research (Financial Research Program), *Data for Studies in Business Finance* (ms. 1943), hereafter referred to as Data Book.

6 For a more complete discussion of this point see National Bureau of Economic Research (Financial Research Program), *The Financial Structure of Incorporated Business: A Cross-Section View, 1937,* by Walter A. Chudson (ms. 1942) Chapter 3.

7 Data on inventory are from Bureau of Internal Revenue, *op. cit.,* pp. 87-88, and on "all other loans" from Federal Reserve System, *Annual Report of the Board of Governors for 1937* (Washington, 1938) p. 110.

8 National Bureau Bulletin 74, *Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932–38,* by Simon Kuznets (June 25, 1939) p. 2.

9 That is, inventory revaluations as reported on profit and loss and surplus reconciliation statements. The coverage of these revaluations is probably incomplete because of the lack of sufficiently detailed published information.

10 George Terborgh recently found that although the book value of manufacturing inventory decreased over 20 percent in 1921, there was no significant net liquidation of physical inventory. "Manufacturing Inventories During and After the World War," *Federal Reserve Bulletin* (July 1941) p. 616.

11 Moses Abramovitz, of the National Bureau staff, has, however, made considerable progress in developing such indexes. His data were incomplete at the time this study was in preparation.

12 George Terborgh has reached the same conclusion for the relationship between total manufacturing inventory and total manufacturing

"value of product." He finds that "an examination of the curve for the ratio of the value of inventory to the value of products discloses no perceptible trend for the period as a whole" (1915–40). Interestingly enough, his preliminary estimate of the level of the ratio for 1941 is lower than for any previous year. See "Volume and Turnover of Manufacturing Inventory, 1915–40" (June 25, 1941) p. 2, an unpublished memorandum of the Division of Research and Statistics, Board of Governors of the Federal Reserve System.

13 Bureau of Foreign and Domestic Commerce, *Retail Credit Survey, 1938,* by Malcolm L. Merriam, p. 3.

14 *Ibid.,* p. 57.

15 Computed by the Federal Reserve Bank of Boston and published in Bureau of Foreign and Domestic Commerce, *1940 Supplement to the Survey of Current Business,* p. 30.

16 It is computed by dividing 365 by the ratio of sales to year-end receivables. Since the sales data include cash as well as credit sales, the average collection period does not indicate the average maturity of credit sales alone.

17 There does not appear, however, to be any clear relationship between size of corporation and size of the ratio of receivables to trade payables. For all manufacturing and trade corporations in 1937 the ratio varied as follows among four different size groups as measured by total assets:

Less than $250,000	1.3
250,000-1,000,000	1.7
1,000,000-10,000,000	1.7
10,000,000 and over	1.3

Computed from Bureau of Internal Revenue, *Statistics of Income for 1937* and the *Source Book of Statistics of Income* maintained in worksheet form in Washington.

18 For example, the insurance depreciation fund assets of United States Steel—in cash and marketable securities—varied as follows from 1928 to 1933 (in millions):

1928	$133	1931	$4
1929	58	1932	6
1930	42	1933	5

19 The tendency among large petroleum companies to make term loans in the recovery of the thirties may also be cited as evidence of "financial behavior leadership" although this development was probably due as well to suggestions from financial institutions common to many of these companies.

CHAPTER FOUR

1 The American Telephone and Telegraph Company, for example, has had easy access to the capital market because of the attractiveness of

its securities to investors. Company witnesses in rate cases have declared that the $9 dividend on the common stock, maintained since 1922, is essential to obtain capital.

2 It should be noted that our analysis of short-term financing is derived almost entirely from year-end financial data. Thus, seasonal financing is discussed only if the peak in business activity occurs at the year end.

3 In our discussion of balance sheet proportions, all balance sheet items, whether they are assets or liabilities, will be related to total assets. Total assets are equal, of course, to total liabilities, including net worth.

4 For sources, see Chapter 3, footnote 2.

5 Notes payable and bank loans are treated here as synonymous. Big business owes possibly less than 10 percent to a miscellaneous group of other creditors.

6 Additional data on seasonal bank borrowing were secured directly from eight of the fourteen companies included in the department store sample. One company replied that although it had never used bank credit, it had no objection to borrowing from banks but was fortunate in enjoying a particularly strong working capital position. The other seven concerns used bank credit in varying amounts. Two were almost continuous borrowers although they were able to pay off their bank loans at least one month in every year. Others were users of bank credit only in the period of greatest activity, in the late fall and winter. All seven companies stated that their principal use for bank credit was the support of seasonal inventory, although on a few occasions funds had been borrowed in advance of some anticipated permanent financing, such as refunding of a bond issue. Although for the eight department stores as a group fiscal year-end (January 31) notes payable were usually considerably less than the maximum monthly borrowings of November and December they were roughly equivalent to average monthly indebtedness throughout the year. See Pearson Hunt and Albert R. Koch, *Financial Requirements of Department Stores, 1920–40* (Bulletin 115, Bureau of Business Research, Harvard University, May 1942).

7 The total resources of all national banks have averaged about 50 percent of the total resources of all commercial banks during the past two decades. See Pearson Hunt, *Portfolio Policies of Commercial Banks in the United States, 1920–1939* (Bureau of Business Research, Harvard University, 1940) p. 2.

8 This is not to infer that these corporations, as going concerns, would have been able to liquidate all of their bank indebtedness with their deposit claims. Much of their deposit account undoubtedly was necessary for day-to-day operations and could have been used to retire current debt only in case of the discontinuance of business; also there were variations in ratios among individual concerns.

9 National Bureau of Economic Research (Financial Research Program), *Financing Small Corporations in Five Manufacturing Industries, 1926–36,* by Charles L. Merwin (1942) and *The Financial Structure of Incorporated Business: A Cross-Section View, 1937,* by Walter A. Chudson (ms. 1942).

10 Computed from Bureau of Internal Revenue, *Statistics of Income for 1937,* pp. 93-94, 131-32.

11 Based on an undated memorandum prepared by the Division of Research and Statistics of the Securities and Exchange Commission.

CHAPTER FIVE

1 See Oscar L. Altman, *Saving, Investment, and National Income,* TNEC Monograph No. 37 (Washington, 1941); J. Ellwood Amos, *Economics of Corporate Saving* (University of Illinois, 1937); H. H. Chapman, *Iron and Steel Companies in Years of Prosperity and Depression* (Ph.D. Thesis, Columbia University, 1935); O. J. Curry, *Utilization of Corporate Profits in Prosperity and Depression,* Michigan Business Studies, Vol. IX, No. 4 (University of Michigan, 1941); C. L. Merwin, Jr., *Financial Characteristics of American Manufacturing Corporations,* TNEC Monograph No. 15 (Washington, 1940); Ruth P. Mack, *The Flow of Business Funds and Consumer Purchasing Power* (Columbia University Press, 1941); S. H. Nerlove, *Decade of Corporate Incomes, 1920–29,* Studies in Business Administration, Vol. II, No. 4 (School of Commerce and Administration, University of Chicago, 1932); Alexander Sachs, "Financial Dynamics of the Recovery Since 1933 and Latest Constriction Phase in Capital Flow," *Corporation Finance and Taxation,* Financial Management Series No. 53 (American Management Association, New York, 1938); and by the same author, "Summary of a Comprehensive Financial Analysis of the Causes of the Slump," *The Annalist* (January 14, 1938) pp. 35-36.

2 This definition of funds from operations is not restricted to cash credits and charges to income. For example, credit sales, uncollected at the fiscal year end, are treated similarly to cash sales, even though they resulted in no receipt of cash but only in a liquid claim to future cash, that is, an account receivable. Likewise, materials charged to cost of sales as an expense may have been purchased on credit, resulting in the assumption of a liability, an account payable, rather than in an immediate drain on cash.

3 Federal Communications Commission, *Report on the Investigation of the Telephone Industry in the United States* (Washington, 1939) pp. 504-08.

4 It should be noted that this is true of the aggregation of Class I railroads and their lessor companies as a group. These dividends were not always paid out of surplus, for while some roads had undistributed earnings after dividend payments, the majority of roads had substantial losses and paid no dividends.

5 See footnote 14 of Chapter 2.

6 See National Bureau of Economic Research, *Capital Consumption and Adjustment,* by Solomon Fabricant (1938) pp. 44, 47.

7 Ruth P. Mack finds that in recent years, for manufacturing corporations in different industries, high maintenance costs were generally associated with high depreciation costs rather than with relatively low

ones. See Mack, *op. cit.*, pp. 49-53. Although Dr. Mack's data are confined to a small number of companies in recent years, if this association has been true throughout the past two decades, and for other industries as well, our analysis of the relative importance among industries of property expenditures and depreciation accruals excluding maintenance expenditures would be similar to that including maintenance expenditures although the dollar magnitudes would, of course, be considerably different.

Maintenance expenditures fluctuate considerably throughout the various phases of the business cycle, increasing in years of recovery and prosperity and decreasing in years of recession and depression. They behave similarly to sales and property expenditures rather than to depreciation accruals. (See also Solomon Fabricant, *op. cit.*, pp. 42-48.)

8 Expenditures (in millions) for maintenance of Class I railroads and their lessor companies, 1921–39, were:

1921	$1,852	1927	$1,848	1933	$721
1922	1,811	1928	1,763	1934	811
1923	2,074	1929	1,799	1935	879
1924	1,845	1930	1,481	1936	1,042
1925	1,852	1931	1,126	1937	1,123
1926	1,918	1932	761	1938	893
				1939	1,029

Data are from the annual publications of the Interstate Commerce Commission, *Statistics of Railways in the United States.*

9 The Federal Communications Commission concluded that annual depreciation charges in the telephone industry have been in excess of probable needs to provide for the recovery of the service value of the property during its life. The Commission contended (1) that the life of telephone property is increasing gradually, and (2) that when the Bell System revises its depreciation rates downward, it does not make adjustments for the excessive accumulations of past depreciation charges. (Federal Communications Commission, *op. cit.*, pp. 325-49.)

10 Solomon Fabricant, *op. cit.*, p. 89.

11 The average of annual depreciation charges of $31 million during the thirties was 2.7 times the average ($11 million) during the twenties. The average of annual sales, on the other hand, increased only 1.7 times ($1.7 billion to $2.9 billion) from the twenties to the thirties.

CHAPTER SIX

1 National Resources Committee, *The Structure of the American Economy,* Part 1 (Washington, 1939) p. 156.

2 The capital market is also an indirect source of funds of business through the financing of their commercial, individual or government customers. The deficit financing of the Federal government in recent years, for example, has been an important indirect source of funds of

business. The importance of this source of funds cannot, of course, be established quantitatively.

3 See, for example, Stuart Chase, "Capital Not Wanted—American Business Rolls Its Own," *Harpers Magazine* (February 1940) pp. 225-35.

4 See George A. Eddy, "Security Issues and Real Investment in 1929," *Review of Economic Statistics* (May 1937) pp. 79-91; and by the same author, "The Present Status of New Security Issues," *op. cit.* (August 1939) pp. 116-21.

5 The data for the National Bureau samples have been adjusted to a basis comparable to the Eddy estimate.

6 These data on security sales include securities issued for the acquisition of subsidiaries and affiliates. The data covering the Bell Telephone System are not comparable to those covering the samples of large manufacturing and trade corporations for two reasons: (1) they were computed from industry, rather than individual company, figures; and (2) they include refunding issues.

7 Recent SEC data substantiate this finding for recent years. For the fiscal year ending June 30, 1939, for example, the industrial distribution of the net proceeds, less selling and distributing costs, received by all manufacturing corporations registering issues with the SEC for all purposes except the retirement of preferred stock and the repayment of long-term debt was as follows:

	(millions)	
Petroleum refining (including distribution)	$187	49%
Iron and steel (excluding machinery)	51	13
Tire and rubber products	36	9
Transportation equipment	24	6
Beverages	10	3
Other manufacturing	74	20
ALL MANUFACTURING	$382	100%

See Securities and Exchange Commission, *Fifth Annual Report* (1940) pp. 210-13.

8 Clifford J. Hynning, *Taxation of Corporate Enterprise,* TNEC Monograph No. 9 (Washington, 1941) p. 40.

9 *Electrical World,* 37th Annual Statistical Number (January 11, 1940) pp. 102-03.

10 The fact that operating revenues of both telephone and electric light and power companies continued to increase in 1930 was undoubtedly partly responsible for continued property expenditures and sales of securities during this year.

11 Temporary National Economic Committee, 76th Congress, 1st Session, *Hearings Pursuant to Public Resolution No. 113,* Part 9 (1940) pp. 4020-22.

12 Reconstruction Finance Corporation, *Quarterly Report*, First Quarter of 1941, pp. 3, 9.

13 Evans Clark, *Internal Debts of the United States* (New York, 1933) p. 95.

14 For a more complete discussion of the development of term lending, see National Bureau of Economic Research (Financial Research Program), *Term Lending to Business*, by Neil H. Jacoby and Raymond J. Saulnier (1942).

15 M. G. Robinson, "Financing Public Utility Construction," *Stone & Webster Bulletin* (June 1938) p. 3.

16 U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, *Long-Term Debts in the United States*, by Donald Horton (Washington, 1937) p. 67.

17 Securities and Exchange Commission, *Cost of Flotation for Small Issues, 1925–1929 and 1935–1938* (Washington, 1940).

18 See Securities and Exchange Commission, *Cost of Flotation for Registered Securities, 1938–1939* (Washington, 1941) and Release No. 572 of the Statistical Series (June 6, 1941).

APPENDIX A

a The Chrysler Corporation was formed in 1925 to acquire the Maxwell Motor Corporation. In 1928 it acquired Dodge Bros., Inc.

b Data pertain to 1923.

c Data pertain to 1922.

d Data not available.

e The American Radiator and Standard Sanitary Corporation was formed in 1929 to acquire the American Radiator Company and the Standard Sanitary Manufacturing Company.

f The International Cement Corporation was formed in 1919. It changed its name to the Lone Star Cement Corporation in 1936.

g The Jones & Laughlin Steel Corporation and the Shell Union Oil Corporation were organized in 1922; the data pertain to that year.

h The Baldwin Locomotive Works acquired the majority interest in the Midvale Company in 1926.

i Remington Rand, Inc. was formed in 1927 to consolidate several companies of which the most important were Remington Typewriter Company and Rand Kardex Bureau, Inc.

j Underwood Typewriter Company acquired control of Elliott Fisher in 1927 and changed its name to Underwood Elliott Fisher Company.

k The Marland Oil Company was incorporated in 1920. In 1929 it changed its name to Continental Oil Company (Del.).

m The Standard Oil Company of New York acquired the Vacuum Oil Company in 1931 and changed its name to Socony-Vacuum Corporation. In 1934 the name was changed again to the Socony-Vacuum Oil Company, Inc.

n The Standard Oil Company of California (a Delaware corporation) was organized in 1926 to acquire the Standard Oil Company of California (a California corporation) and the Pacific Oil Company.

o The Tide Water Associated Oil Company was formed in 1926 to acquire control of the Associated Oil Company and the Tide Water Oil Company.

p The Ginter Company was incorporated in 1917. It changed its name to First National Stores, Inc. in 1925 when it was consolidated with the John T. Connor Company and O'Keeffe's, Inc.

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